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The Builder

R L Gibson

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The Irish Drainage Bills: With Special Reference to the Shannon.

THE work to be done under the authority of the four Drainage Bills before Parliament, and which have now been referred to a Select Committee, consists of the regulation of the channels of the Shannon, the Suck, the Barrow, and the Bann rivers. The Suck is a tributary of the Shannon, and in former propositions made to Parliament it has been included with the main river in respect of management, but now it appears likely that it will remain under its present Board. The area draining into it is about 400,000 acres, which is one-seventh of the whole. It enters the main river in its lower half portion, on the right, or west, bank, eighty miles from the head of the river. The source of the River Shannon is in the middle of Ireland, in the mountains round Lough Allen, westward of Newry and Dundalk. From this high ground the rain-water runs southward, eastward, and westward into the Allen lake, which has an area of nearly 9,000 acres, and a catchment area of 100,000 acres, English statute measure. The waters of the lake flow out of its southern end, and it forms practically the head of the river, the course of which is southwards to Limerick, where it meets the tidal waters, and thence westward to the sea.

Lough Allen is proposed to be converted into an impounding reservoir for the flood waters of its catchment area. At present these flow out of it, while the river below is at the same time in flood, although they cannot flow out as fast as they come in, for, during a great flood, which here, as elsewhere, mostly occurs during the winter months, the surface of the lake rises several feet; but the flood waters, nevertheless, continue to flow out of the lake and increase the flood in the river, and the country through which the Shannon flows is overspread with water, which might be kept back until the river floods subside, or longer, until dry weather sets in. Mr. Bateman, the eminent engineer lately dead, reported to the Government in 1867 on the drainage effected by this river, and one of his recommendations was that Lough Allen should be utilised as an impounding reservoir. A great flood was estimated at from 1·5 to 2 cubic feet per minute per acre of the whole catchment area. This is not derived from any assumed depth of rainfall, being the result of measurements of the volumes of streams in flood times, but it may be converted into a rainfall depth for comparison. If the rainfall producing the estimated flow of say 2 cubic feet per minute per acre of the 100,000 acres were to extend over the whole of it, 1 inch in depth of rain in twenty-four hours would produce that rate of flow. Eight-tenths of an inch is, indeed, the actual depth represented by it, but making allowance for loss between the quantity measured in a rain-gauge, and that actually flowing off the ground, the full inch may be taken as the rainfall in twenty-four hours, which would represent a flow off the ground of 2 cubic feet per minute per acre; but on some occasions the result would more probably be due to a greater depth of rainfall over a part only of this large area. The water coming into the lake in twenty-four hours would, therefore, be 288 million cubic feet; but this, great as it is, would all be impounded before the level were raised 9 inches in height above its summer level, and the same rate of flow into the lake might continue for four consecutive days without raising the level more than 3 ft. During that time, supposing this water to be impounded, the flood in the river below would probably subside, giving room within its banks to carry off the quantity which had been impounded, and which would in due time be let off from the reservoir until its surface subsided to its present summer level; but the lake might be raised 5 ft. or 6 ft., giving room for the impounding of 2,000 million cubic feet of water or more; if, indeed, it were necessary to provide for so large a quantity. Winter floods do now raise the surface of the lake 4 ft. above its summer level, according to the evidence of General Sankey, the Chairman of the Board of Works, from a memorandum prepared by Mr. Manning, the Chief Engineer to that Board. The lake having a free outlet, the raising of the surface shows the great quantity of water coming into it in a flood, and also the narrowness,—comparatively,—of the outlet, and it is considered that a vast amount of water might be impounded by an embankment of but little height.

Below Lough Allen the river course is in most parts confined within a moderate width from bank to bank, but the river portions are interrupted by numerous wide expanses of water which has overflowed low tracts of land in its course. The Shannon is navigable from end to end for vessels drawing 4½ or 5 ft. of water, and on the river portions there are weirs to increase the depth of water. Going downwards from Lough Allen, at Jamestown the crest of the weir is 6 ft. above the sill of the adjoining navigation lock.

At Rooskey is another weir 6 ft. above the lock sill; and the lowermost weir on this length of river is at Tarmonbarry, thirty-three miles below Lough Allen, the top of the weir being from 5 ft. to 6 ft. above the lock sills. The total fall of the river from Lough Allen to Tarmonbarry is 31 ft. All these old weirs were built solid, many years ago, by the

Board of Works, the floods going over the crests, but these are so nearly at the height of the adjoining lands that they begin to be flooded when the water rises at Jamestown 1 ft. above the weir; at Rooskey when it rises 1 ft.; at Tarmonbarry when it rises 2 ft. above the weir. But winter floods have been recorded which have risen at these places respectively 4 ft. 9 in., 3 ft. 5 in., and 3 ft. 3 in. above the weirs.

The quantity of water to be provided for was estimated by Mr. Bateman at 350,000 cubic feet per minute at Jamestown; 440,000 at Rooskey, and 500,000 at Tarmonbarry, and to keep down the flood level it was recommended that sluices should be built into these solid weirs, and opened in anticipation of a flood. Seven or eight miles below Tarmonbarry is the head of Lough Ree, eighteen miles in length, at the foot of which is Athlone. Sixteen miles below Athlone the River Suck joins the main river, on the right, or west, bank; and, five miles lower down the River Brosna comes in on the left bank. A few miles below the Brosna is Meelick, where deep and wide cutting in the river-bed was found to be necessary. Nine miles further down is the head of Lough Derg, twenty-three miles in length, and at its foot is Killaloe. From the foot of Lough Ree to the head of Lough Derg, about thirty-six miles, is the length of river most frequently overflowed. From Killaloe to Limerick, fifteen miles, the fall is rapid, being 97 ft. in that length, or about 6½ ft. per mile.

Thus Killaloe is called the key of the position, for if the level of Lough Derg could be lowered it would increase the rate of fall in the river above it up to Athlone. But this would, of course, necessitate a deepening of the river, if the navigation were to be maintained, and, accordingly, at Meelick and other places this was recommended to be done, as also to place sluices in the weirs at Athlone, Meelick, and Killaloe. At Killaloe the weir is 1,100 ft. long, and the number of sluices required was thirty-six, each 6 ft. by 6 ft. in the clear. The greatest flood here amounts to 1,600,000 cubic feet per minute, and as much as 1,200,000 was provided for. Mr. Bateman's recommendations, indeed, amounted to a complete scheme for carrying off the water in the river-course without injuring it as a navigable channel. Some of the works recommended have been carried out, and some portions of the flooded lands relieved; but the evidence given before the Royal Commission in 1887 tends to show that Mr. Manning's warning was justified,—that they could not result in complete control of the floods, to which end further excavation in certain portions of the river-bed would be necessary. In that conclusion the Commissioners concurred; the level of the water had not been sufficiently lowered to secure efficient drainage, even during the summer and autumn floods; and although, since these partial works have been carried out, no extraordinary floods have occurred during the critical times of the year, yet it may be expected that these will occur from time to time during summer and autumn, and then the damage will probably be increased because of the security which has been engendered by the partial success of the sluices; for these sluices cannot be really efficient while unaided by those improvements in the channels leading to and from them which were proposed, which are absolutely necessary to accelerate the flow of water, and which must be executed if a lasting improvement is to be realised. The Shannon, the Commissioners further said, like many others of the Irish rivers, has suffered from a want of completeness in treatment, and the time has now arrived when it would be desirable to grapple with the whole question. Accordingly, the present Bill proposes to empower the Commissioners of Public Works to execute the works recommended by the Royal Commission in 1887 for the further prevention of floods and the consequent improvement of the drainage of the lands adjoining the river.

In a memorandum delivered to the Royal Commission by the Chairman of the Board of Works it was stated that the work which had been done, although only to a partial extent, has been effective as far as it has gone. Before anything was done there were 34,700 acres inundated by flood-waters, of which 13,200 acres have been relieved; and, whereas the number of days in a year during which a large extent of land was flooded,—taking the mean of the number of days at Jamestown, Rooskey, Tarmonbarry, Athlone, and Meelick,—was on the average fifty-two days in a year, it was only twenty-two days on the average of the four years following that in which the work was done,—1883.

At present, as we have said, the Shannon river is navigable the whole way from Limerick and Killaloe to the head of the river. Near the middle of this distance is Athlone. It was proposed by the Royal Commission to abandon the navigation above Athlone. The Commissioners reported that in 1886 the traffic of this upper part of the navigation returned only 30*l.* gross receipts, and that they saw no reason to suppose that the navigation above Athlone would hereafter become of more value, and they recommended that above Athlone the navigation should be abandoned; that the gates of the locks be removed; and that the canalised portions of the river be used for the discharge of floods. This, of course, would result in a considerable diminution of the works proposed by Mr. Bateman, whose scheme, while providing for the drainage, still maintains the efficiency of the navigation. A Bill has been introduced along with the Drainage Bills for making light railways through the "congested districts" in the west of Ireland. A large part of the agricultural population of these districts is crowded along the sea-shore, where seaweed is obtained for manuring the land, and the railways would bring the agricultural produce into some proximity with the market, and would also provide means of transit for the fishing industry. But with regard to the navigation of the Shannon river, it may be a question whether the construction of light railways in one part of the country can warrant the abandonment of the only means of transit in another part, unless it be intended to substitute the light railway for the river navigation throughout its course.

The proposals of the Government with regard to these rivers are as follows:—

Shannon.—The Commissioners of Public Works to be empowered to execute works recommended by the Royal Commission for the further prevention of floods. The works proposed are those recommended by Mr. Bateman, but with modifications in some particulars. It is proposed to give up the navigation above Athlone; but this abandonment of navigation, which is required in order to save expense in executing the drainage-works, need not necessarily be permanent. It is not intended to interfere with the masonry of the locks; and although it is proposed to lower some of the weirs and to reduce the navigable depths of water, yet the cost of restoring the weirs to their former level would not be great if it should hereafter be considered desirable that the depth of water should be restored to that which at present exists. The estimated cost of the works is 263,000*l.*, of which it is estimated that 35,000*l.* can be charged upon the lands specially benefited, in the form of an annual charge of 4*l.* 10s. for every 100*l.* advanced by the Government, payable during the first forty years. This charge for capital expenditure would, therefore, be 1,575*l.* per annum, but will not begin to be payable until the whole of the advances have been made. The maintenance charge per annum upon the specially-benefited lands will be about the same amount, making in all a charge of 3,150*l.*: 65,000*l.* is proposed to be charged upon the catchment area of the river, repayable at the rate of 4½ per cent. for forty years. The share of the maintenance charge to be paid by the catchment area will be about 2,675*l.* per annum, which, with the charge for the capital outlay, will cause an addition of 1d. in the 1*l.* to the grand jury cess; 65,000*l.* will be raised by a mortgage on the eel weirs, tolls, and surplus lands. The residue of the cost of the works, not exceeding 98,000*l.*, will be supplied as a free grant from moneys voted by Parliament. It is not proposed that the works should be undertaken unless with the assent of the occupiers of lands specially benefited and of the occupiers of lands in the rest of the catchment area, and the voting power of the benefited area is to be three times the voting power of the rest of the area.

Suck. — The total amount required is 185,000*l.*, towards which the Government will make a free grant of 50,000*l.*

Barrow.—The estimated cost of the works is 360,000*l.*, of which it is estimated that 125,000*l.* can be charged upon the lands and buildings specially benefited, in the form of an annual charge of 4½ per cent. for forty years, amounting to 5,625*l.* per annum for that period. The annual maintenance charge upon these same lands will come to about 3,475*l.*, making in all an annual charge of 9,100*l.* Twenty thousand pounds is to be charged upon the county cess. The share of the maintenance charge to be defrayed out of the county cess will be about 600*l.* a year, making, with the capital charge, an addition of about 1d. in the 1*l.* within the catchment area. The residue of the cost of the works, not exceeding 215,000*l.*, will be supplied as a free grant from moneys voted by Parliament.

Bann.—The estimated cost of the works is 65,000*l.*, of which it is proposed to charge 8,000*l.* upon lands specially benefited; 37,000*l.* upon the county cess within the catchment area, and the residue, 20,000*l.*, will be a free grant. The local charge will be 4½ per cent. for forty years. The charge upon the lands specially benefited in repayment of the 8,000*l.* will be 360*l.* per annum, which will be apportioned by a final award according to the benefit received from the works. The maintenance charge payable by the improved lands will be about 660*l.* per annum, making, with the charge for capital expenditure, 1,020*l.* per annum. Upon the catchment area the maintenance charge will be about 3,383*l.*, and, together with the charge of 1,665*l.* for capital expenditure, will add about 1d. in the 1*l.* to the grand jury cess.

THE COMPETITION FOR THE NEW MUNICIPAL BUILDINGS AT GLOUCESTER.

THE result of this competition, successful as it is, makes it apparent that the Gloucester Corporation ran considerable risk of failure in limiting the number of competitors to the local architects and three others. As a result only two local firms thought it worth their while to compete against the selected three—selected of course for their well-known skill and experience—and the promoters of the competition had but five designs to choose from. Fortunately one of the five, Mr. Hunt's, is an eminently good one, but without it there must have been a failure.

The site is a difficult one for an important public building—a long narrow strip from street to street, between high buildings, having some rights of light over it. The direction that the style of the neighbouring buildings was to be considered cannot have given any one much difficulty. The banking-house on one side is a modern building, of the style of which it is impossible to say anything more accurate than that it is "Classic," with a big dormer, an order, and a couple of Renaissance pinnacles. The inn upon the other side is not of architectural character at all. Opposite is a market, with a front of three large arches worked into the façade of a Roman temple, and close by are two more banks of a simple Renaissance character. Anything that could be called Renaissance, therefore, would have met the requirements of the instruction. The suggestion that the existing building on the site might be worked in if an alternative design were submitted may

have given more trouble, but only two of the competitors have been able to do anything with it, and they have not been very successful. This is rather a pity, for the old school building has a quiet, characteristic, seventeenth-century façade which, with some repairs to the stonework, might continue to be an ornament to the town for many years.

The accommodation asked for in the "Instructions" was that which would be required in municipal buildings for a town of 50,000 inhabitants, together with a large public hall, but exclusive of a police-station or courts. A detailed list of the number and sizes of the apartments was given, as well as a suggestion that the total cost ought not to exceed 12,000*l.*, but it was distinctly stated that the competitors might use their own judgment. This they seem to have done; and, as a matter of fact, it is improbable that any of the designs could be carried out for the sum named.

Mr. G. H. Hunt, of London, whose design was placed first by Mr. Waterhouse, has saved himself from many difficulties and solved the troublesome problem of providing light for the offices on the ground-floor by placing a courtyard of considerable size about the middle of the west side of the site. All the other competitors have been content with small light areas and wells. He deserves also great credit for the idea, which does not seem to have occurred to anyone else, of placing the whole of the public offices and working parts of the building generally on the ground floor, devoting the first floor entirely to the public hall, Council Chamber, committee-rooms, &c. This is obviously convenient both for the business to be done in the building, and also for the giving of public dinners and entertainments, for which, the instructions state, the Council Chamber and committee-rooms, as well as the public hall, will be used. These are the two distinguishing merits of the plans, and they probably were decisive with the judge; but there are also some minor points that are cleverly treated, such as the entrance to the School Board Room through the waiting room, and the direct exit from it, as well as the arrangement of the main staircase to the public hall, which will be exceedingly effective, though it gives offence to some of the other competitors who, happening to be in the Corn Exchange, where the drawings were exhibited, while our critic was examining them, were good enough to save the latter a vast amount of trouble by pointing out the faults of the winning design, and to get him out of a difficulty by explaining the merits of their own production. Mr. Hunt has a central entrance to his building, rather a narrow one, from the main street, from which, through a vestibule, a hall is reached, extending practically across the whole width of the site. At the east end is a large public staircase to the first floor and a small one to the public gallery of the Council Chamber; at the other end is a lavatory and small staircase for officials and councillors. From the hall several offices and a small committee-room are reached, and the rest of the offices are ranged along a corridor running from front to back on the east side of the building, communicating at the back with another smaller entrance hall and the staircase to the public hall. The School Board offices are in the rear of the building. On this floor, the chief faults are that the Town Clerk's strong-room is at present entered from the public part of his office, but a perfectly obvious alteration would rectify that; the Surveyor's drawing-office has a south light, which is unlucky, but not fatal. On the first floor there is a repetition of the hall below, which is lighted by a well in the floor between, and by a small well in the main staircase, which might with great advantage, and no loss of space that is valuable be more than doubled in size. At the back of this hall, lighted from the courtyard and from above, is the Council Chamber, and in front of it a suite of three rooms, the Mayor's Parlour, and two committee-rooms; the latter are badly placed, being too near to the noise of one of the busiest streets in Gloucester. The public hall occupies on this floor the whole of the frontage to the back street, and between it and the Council Chamber, very well placed, is the principal committee-room. The caretaker's rooms and the kitchens are on the second floor, and the worst point of the design is, perhaps, the difficulty of communication between the latter and the principal public rooms. In the case of the large hall there is a small service-room having a lift from the kitchen; but in that of the Council Chamber, which is to be the usual banqueting-room, there is nothing, and in both cases the only access for servants is partly, at least, by the main public staircases. The front of this design to the main street, though too heavy, is of some merit architecturally, and the detail drawing of it is so well executed that it might readily lead the critic to form even a higher judgment of the design than it really deserves. The *façade* is divided vertically into a wide centre, and narrow end blocks, pavilions one would call them if they had any visible roofs, and horizontally into basement, principal story, and attic. The basement has rustications without vertical joints, and a simple cornice; the windows are plain, and the door is surmounted by a balcony carried on brackets. The centre part of the first-floor is composed of three plain semi-circular arches, rather incongruously divided by half-columns of a decided Greek character, and surmounted by a plain modillion cornice of considerable projection. The attic, which, by the way, masks only "spare" rooms, and is added to give height to the front, is elaborately carved with winged boys, and has circular openings. The whole is surmounted by a parapet and urns of neo-grec character.

The design "Prætorium," by Messrs. Medland & Son, of Gloucester, which obtained the second premium, has the peculiarity that the large public hall is placed upon the street level, an arrangement very convenient as regards itself, but one which has terribly hampered the architects in dealing with the site generally. In the first place, it occupies space that should have been given to offices, with the result that the Town Clerk's and Surveyor's suites of offices have had to be divided, and a part of each banished to the second floor. To add to the difficulties, it has been thought necessary, or at any rate desirable, to place the hall centrally on the site, apparently for the sake of symmetry, and with its length parallel to the long way of the ground. It thus cuts into the available space in such a way as to practically monopolise all the back part of the site which is devoted to it and the School Board offices, which are not only inconveniently planned, but have to be lighted entirely by skylights. In the front part of the building, a good vestibule gives access from the street to a small hall and comparatively poor staircase. The Town Clerk's offices are on the first floor, but the rest, with the exceptions above noted, are very conveniently grouped round the entrance-hall. The rest of the ground floor is given up to two committee-rooms. On the first floor the back of the site is taken up by the upper part of the great hall; the Council Chamber is in the middle, lighted from areas at both ends and by a skylight; committee-rooms, the Mayor's Parlour, and the Town Clerk's offices occupy the front. The kitchens are on the second floor, and their communication with the Council Chamber is well arranged, but they have none with the public hall without going outside the building or through the public corridor on the ground floor. The architectural treatment of the principal front in this design is lighter than Mr. Hunt's, and would probably please most people better, but it is less appropriate to the character of the building, and the two ugly bay windows on the first floor would have to be suppressed if the whole were to escape looking like a private mansion with a turret put on the top of it. Apart from the bays this front might claim to be a fair specimen of the French Renaissance style. This design has fairly beaten the other three, but it is a long way behind the first, and would probably not have had a chance of a place in an open competition.

"Simplicity," by Mr. J. Fletcher Trew, of Gloucester, probably owes its third place to a happy treatment of the approaches to the public hall and Council Chamber, combined with the fact that the arrangements shown in the plans are, on the whole, fairly workable, and that its only conspicuous demerits are of an artistic kind,—a kind which, arbitrator or no arbitrator, seems seldom to have much influence in competitions. Mr. Trew has placed his public hall across the back of the site on the first floor, and his Council Chamber on the same floor nearer the front of the building, and separated from the first only by the landing of a pair of semi-circular staircases, which give access to it from a central corridor running from front to back of the building on the ground floor, and communicating with the entrances from Eastgate and New Inn-streets. At the west end these two large apartments are connected with the kitchens, &c., by means of a serving-room and small staircase; and over the double staircases they are again connected by a music-gallery. Except in this arrangement, the design presents no points of conspicuous merit, and the only blame we should be inclined to award to it would be for the worse than commonplace character of the design for the front.

Messrs. Giles & Gough, of London, and Mr. Wm. Dawes, of Manchester, have each submitted two designs, but none of the four found favour with the arbitrator. In both their designs Messrs. Giles & Gough have fallen into the strange error of placing the public hall upon the second floor, an arrangement which one would have supposed them experienced enough to know to be entirely inadmissible. In their second design, too, they commit the almost equally unpardonable error of putting the Council Chamber next to the street. If it had not been for these mistakes, and the fact that their best design would probably be even more costly than any of the others, they must have obtained a place, for most of the arrangements of their plans are excellent, and the design for the front of their building the most striking in the room.

Mr. Dawes places his large hall and Council Chamber adjoining on the first floor on which are also the committee-rooms, Town Clerk's offices and Mayor's Parlour; the rest of the offices are ranged on each side of a long central corridor on the ground floor. The chief features of the front are a great domical roof and lantern as the central feature, and high hipped roofs to the end pavilions, the general effect is rather heavy, but not altogether unpleasing. The provision of the open yard and driveway, stipulated for in the instructions, seems to have been more wholly forgotten in this design than even in the other unsuccessful ones, but that is the only other point calling for special remark.

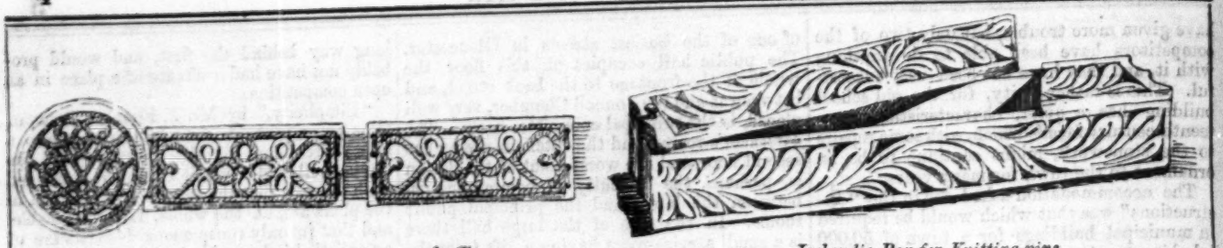
Speaking generally, we cannot say that we think the level reached in the competition is very high; Mr. Hunt's design is excellent in most ways, but the façade, unless modified, will look unnecessarily heavy even for the class of building, and, for the rest, we doubt whether any of the other designs could ever have worked out satisfactorily without rather sweeping modifications.

NOTES ON PORTLAND CEMENT: THE REACTIONS INVOLVED IN ITS CALCINATION.

BY B. H. THWAITE, C.E.

THE following few notes on the syntheses of the reactions involved in the calcination of Portland cement, based on Le Chatelier's researches, may be interesting to students of constructive science. No scientist has applied scientific reasoning to, nor analysed the development of, the various actions occurring in many industrial processes with more thoroughness and power than has Le Chatelier.

In the calcination of Portland cement, the



Icelandic Belt with Silver Ornaments and Clasp. *Icelandic Box for Knitting-pins.*

first effect is the expulsion of the water at 100° Cent.

The next effect is the decomposition of the clay at a temperature of 600° Cent., and its dehydration.

Between 800° and 900° Cent. the calcic carbonate is decomposed with the expulsion of the carbon-dioxide (CO_2). The calcic carbonate is then converted into quicklime.

This is an important phase in the calcination. Immediately the carbon-dioxide leaves the lime the influence of the contact with the clay is accelerated, and the two agents, lime and clay, combine,—the combination becoming more complete the higher the temperature, and the more it is prolonged.

The grains of lime and particles of clay form fusible amalgams of two kinds; one having a basic preponderance, the other an acid one. In any amalgam constituted of a piece of imperfectly calcined clinker, the centre will be found to consist of the clay constituents, silica and alumina. Around this will be melted glass, or an excessive preponderance of clay, in a mixture of the clay and the lime. Next to this will be a melted mixture of the double silicates (silicates mono and dicalcic), both fusible at the ordinary temperature of calcination of the cements. Next to this last amalgam, and forming the more perfectly burnt part of the clinker, are the silicates of lime, the silicates-tricalcic (infusible), and the aluminates of lime (fusible), and, finally, the quicklime.

The proportion of these various elements varies continually with the degree of advancement of calcination.

If there is a very considerable excess of the lime agent, the final product of calcination will be the silicate tricalcic and aluminate tricalcic along with quicklime — if the proportion of lime is not in excess—the quicklime will be absent if less lime is used, the calcic aluminate will disappear, and will be replaced by a double silicate, analogous in its composition to blast-furnace slag.

If the proportion of lime is further diminished, the silicate tricalcic will disappear, and be replaced by the silicate dicalcic, and a further calcic reduction will convert the silicate dicalcic into the silicate monocalcic.

The following table illustrates the influence of an excess of lime on the character of Portland Cement:—

Normal Cement.		Excess of Lime.	
$S_2O^2 = 1{\cdot}00$ $Al^2O^3 = 0{\cdot}21$	1·21	1·00 0·17	1·17
$Fe^2O^3 = 0{\cdot}04$		0·03	
$CaO = 3{\cdot}29$		3·71	
$M_gO = 0{\cdot}08$		0·05	3·76
$CaO{\cdot}SO^2 . 0{\cdot}015$		0·01	
Bases / Acid	$\frac{3{\cdot}37}{1{\cdot}21} = 2{\cdot}78$	$\frac{3{\cdot}76}{1{\cdot}17} = 3{\cdot}2$	

The analyses of cement should show that the cement has not an excess of lime, or more than three equivalents of protoxide ($CaOM_gO$) to one equivalent of acid ($SiO^2Al^2O^3$).

The North Sea Baltic Canal.—The work of cutting the North Sea Baltic Canal is rapidly proceeding, some 3,000 men, ten steam diggers, and other machines being employed in the work. The work of excavation is entrusted to a firm of contractors, but the Canal Commission exercises a minute supervision. The workmen are lodged in commodious barracks, the charge for bed and food being only 1s. 9d. a day, whilst the average rate of wages is 2s. 6d. a day.

NOTES.

THE remarkable address on "Hautes Études" or "Advanced Studies in Architecture" (as we have paraphrased it) delivered by M. César Daly at the International Congress of Architects in Paris, must have impressed all who heard it with the eloquence and command of language and ideas exhibited in a long discourse delivered with the greatest fluency and without a single note; an intellectual display remarkable in itself, apart from the question of the view taken of architectural study. Our report of it on another page is necessarily brief, and rather a summary than a report; on the other hand M. Daly intimates that he had by no means the necessary time to develope the subject as it presented itself to his mind. If it be objected by those who are called practical men that all this reasoning leads to no visible or immediate architectural result, it may be replied that the same kind of argument has been used against Darwin's Evolution theory, viz., that we do not see these changes and evolutions going on before our eyes; the objectors forgetting that a life-time is too short a space in which to see them. So the connexion insisted on by M. Daly between architecture and nature on the one hand, and architecture and civilisation on the other hand, is not the less real because it is difficult to detect it in detail, and it requires a very large survey of the history and æsthetics of the subject to perceive it. What M. Daly is endeavouring to do is to substitute for the unconscious development of architecture in former ages—a condition which modern extension of knowledge through history and travel renders no longer possible—a conscious development based on a wider and more comprehensive study of architecture, and the influences which act upon it, than has ever been undertaken before. The idea is at all events a grand one; and the discussion of it, if apparently of a somewhat intangible nature at the moment, may at all events lead to the study of architecture being taken up in a broader and more philosophic spirit than has yet been the case, perhaps with ultimate results beyond what are looked for at present.

THE case of Pritchard *v.* Lang and another, which has been heard on appeal before Lord Coleridge, was an action by a widow for compensation for the death of her husband by falling into a caisson chamber on leaving the works. In the report of the case in the *Times* it was stated that "men leaving the dock usually leave it by crossing a caisson 5 ft. or 6 ft. broad, and deep enough to drown a man. When they got to the end they came to two planks put across, side by side, from one side to the other of the dock wall. On passing over the planks there were three baulks of timber, 10 in. square, put across the caisson chamber, and a man could step from the planks on the baulks, which were close to one another, their surfaces being about 18 in. on one side above the level of the boards, and they were laid upon other baulks parallel to the caisson chamber. There were chains on the caisson, but which were not up on the night in question—in January. After passing over the caisson the men ought to turn sharp to the right. If they did not do so they would fall into the chamber. A fellow-workman said he 'thought the place dangerous.' There were lights placed there, but the men often took them away, and he had spoken to the dockmaster about it, and it appeared that on this night the lights were not there. But on cross-examination, the witness said that before a man could fall into the caisson he would have to step on the planks and then on the baulks, and that the proper way for the men to go was to step on the planks and then turn to the right. There were other ways the man might have gone, but it did not appear that he knew of them." Lord Coleridge observed that the master was entitled to protection as well as the workman, and that if the workman chose to take a certain way when another was open to him, he took it at his own risk. He ruled that the disaster had not arisen from the negligence of any one for whom the employer was responsible, and that therefore the previous verdict for the plaintiff must be set aside, and a verdict entered for the defendants. On the basis of the facts as reported we entirely concur with the ruling. We have on other occasions spoken strongly of the duty of the employer to look after the safety of the workman; but the negligence of workmen in regard to their own and each others' safety is a constant source of accidents, as it appears to have been in this case, and they have neither the legal nor the moral right to expect that the employer should be made responsible for this.

IN the rooms of the Royal Archæological Institute, at 17, Oxford Mansion, an Icelandic lady brought together for exhibition last week a small but interesting collection of the industrial and art products of her country. The immediate object of the exhibition, which is under the patronage of the Princess of Wales, is to raise funds to assist the better education of the women of the island, but among the exhibits are rolls of homespun cloth and some hand-knitted woollen socks and gloves, which may, perhaps, call attention to a possible rival of the Shetlands in supplying us with such things. Of those exhibits which are more properly works of art, the silver and silver-gilt work, especially the belts (of one of which we give an illustration above), chains, and clasps, are the most important and interesting. A few of the belts are entirely of metal, but the majority consist of a close row of independent ornaments, sewn on to a strip of cloth or leather. As all of them are heirlooms, handed down from mother to daughter for many generations, this is the more convenient form, since the length of the belt can be so readily adjusted to the girth of the wearer. After the silver work there comes next, in artistic interest, the wood-carving. This consists chiefly of boxes for trinkets, for wools, for knitting-needles, and for a variety of other purposes, among which the long narrow knitting-pin boxes (see illustration) are the most original. They are cut out of solid little logs—"dug-out," as one would say, of a canoe—and the methods of opening and securing the lids are various and ingenious. The carving is rough and generally very shallow; most of it is of the interlacing kind which we connect with early Scandinavian art; some is poor in design, but generally the sweep of the bands or ribbons and the lines of the foliage into which they break are peculiarly pleasing. Together with these boxes are several porringers like squat little tubs with carved lids and handles.* We noticed also some interesting primitive brass lamps, some embroidered woollen rugs, more notable,

* One was figured in the *Builder* for April 3, 1886, under the name of a fish-pot.

certainly, for the brightness than for the harmony of their colouring, and some heavy looking brass mounted side-saddles and harness. The Exhibition is to remain open, we understand, until the 18th inst.

ANOTHER number (Dil—Don) of MM. Daremberg, Saglio, and Pottier's "Dictionnaire des Antiquités" has just been issued, and it contains several noteworthy articles. In the domain of mythology we have a good and very fully illustrated article on the Dioscuri by M. Albert, and another on Dionysus by M. Girard. The strong point of the "Dictionnaire" has, however, always been rather antiquities proper than mythology. The mythological standpoint has been, with one or two exceptions, somewhat behind-hand, and there is a lack of discrimination between early and late mythical tradition. The article on Greek and Roman houses (Domus) will be found very useful, though it seems to us a mistake to illustrate it so freely with woodcuts of Pompeian *paintings*; they are, indeed, part of the decoration of a house, but their proper place, surely, even though they occasionally show some architectural detail, is under the article "Peinture." In fact, one great defect from which the "Dictionnaire" suffers is that it is not easy—at least for the English reader—to know where to look for what he wants. Who that desired particulars of the inscribed votive pillars and vases recently found on the Acropolis would look for them, as he must, under the head of "Donarium?" One is left with the impression that the writer of the article had heard recently of these discoveries, and thought at all hazards he had better incorporate them. We ourselves have not wholly renounced the baneful and misleading habit of calling Greek things and persons by Latin names, but the French, owing, of course, to the unbroken tradition of their language, are worse offenders. In the matter of excellent and well-nigh complete bibliography, the "Dictionnaire" still stands alone.

THE *Scottish Art Review* for July contains an article on that celebrated old Scottish mansion, Pinkie House, with some illustrations from original drawings by Mr. T. Crawford Hamilton. We gather that the article is the first of an intended series on "The Mansions of Scotland and their Contents," a subject well worth treating in a continuous form.

MR. PHILIP NORMAN, F.S.A., has brought to an end his valuable series of illustrated articles, as contributed to the *Antiquary*, upon London Sculptured House Signs. The theme covers more ground than is generally known; and the author, whilst avowedly not quite exhausting his subject, shows how much yet remains for those who, in traversing the streets, will but be at the pains of lifting their eyes to a level higher than that of the fascias and shop-fronts. The lions, to take one example, that were so familiar to our last generation, become scarcer every year: one of the best of their kind distinguishes a public-house in Arthur-street, leading from New Oxford-street to St. Giles's Church. Mr. Norman gives a short list of certain signs that have altogether disappeared. In that category he places the little carving of the King's Porter and Dwarf, Newgate-street. This bas-relief, illustrated in Pennant's work, represents William Evans, a Monmouthshire man, with the fiery little Sir Geoffrey Hudson, whom Vandyck did not disdain to portray, and whom Scott introduces into "Peveril of the Peak." Nevertheless, the stone can be seen, and close by its original position, in the front of No. 78, Newgate-street, over the central first-floor window. It formerly stood above the southern opening of Bull Head-court, between Bagnio-court — since Bath-street, but now gratuitously re-named Roman Bath-street—and Butcher Hall-lane, now styled King Edward-street. Nor is Mr. Norman's tale of signs in the Guildhall Museum quite complete. He does not cite the St. George and Dragon, mutilated as it is, from George-yard on Snow-hill; or the carved effigy of the giant Gerard from Gyssours', or Gerard's Hall, Basing-lane, in the Parish of St. Mildred, Bread-street. The old hall, demolished some thirty-seven years ago, and famed for its Norman crypt, is mentioned in a deed of gift by William Cotterell, in the twelfth century, to the Knights of St. John, quoted in the Liber Johannis Stillingflete, compiled in 1434.* They used to show there a pole 39 ft. long, which the giant was reputed to have wielded in battle, and J. W. Archer says his tilting-helmet hung in the church. Into the civic museum were removed, too, the figures of a boy and girl from the Ward Schools in Bull and Mouth-street. That thoroughfare, by the way, now quite absorbed in the Post-Office new site, was for a while called Stewkeley's-street, as appears by a marble tablet, bearing date "1668," in the Museum. The Little Wooden Midshipman that plays its part in the still-life of "Dombey and Son," and which even Charles Dickens describes inaccurately, has, as is stated, migrated from Leadenhall-street to the Minories. There, though not without a rival, it still appertains to the nautical-instruments and charts business founded by Wm. Heather, a teacher of navigation, in 1765†, and now carried on by Messrs. Norie & Wilson. That figure, the oldest of its own sort in London, dates from an early year of this century; the uniform is exact and complete. Much is yet left to be said about the tablets at the street corners. In no quarter were these more numerous than in Soho, whence, however, nearly all have vanished in the making of the two new thoroughfares that now join St. Giles's to St. James's.

THE first case has arisen under Section 12 of the Working Classes Dwellings Act of 1885, which contains the enactment that "in any contract for letting, for habitation by persons of the working classes, a house or part of a house, there shall be implied a condition that the house is in all respects reasonably fit for human habitation," whereby a paternal care is exercised by the State over the interests of working class tenants, as against the landlords, which those who do not belong to that favoured but ill-defined order of men sigh for in vain. This was the case of Walker and wife *v.* Hobbs & Co., in which the plaintiffs took three rooms in a block of artisans' dwellings built by the defendants. There were two falls of plaster, about which apparently nothing was said, but in a third fall the wife was injured by plaster falling on her head, and the action was taken on three grounds (1) breach of actual warranty that the ceiling was sound; (2) wrongfully leaving the ceiling in an unsafe state; (3) on the enactment in the statute. The first two grounds, however, failed, and the case rested on the Act. The plaintiffs obtained 50*l.* damages, and an appeal was made by the defendants, who contended that the clause only referred to sanitary defects, such as bad drains. Lord Coleridge upheld the original verdict, and dismissed the appeal as "irrational" in its grounds. Why cannot others besides "working-men" have the same justice done them when they are injured in health and pocket by the state of their residence, through no fault of their own?

A WARNING as to a possible danger from automatic sprinklers is given in the account of a fire at the Victoria Flour Mills, near Wellingborough. The buildings were fitted with automatic sprinklers, which acted as they were designed as far as putting out the fire was concerned, but no one could stop the sprinklers afterwards, and the place was deluged with water, which did a great deal more serious damage than the fire. The incident has its ludicrous side, though perhaps the owner of the property damaged did not appreciate that. It shows the importance of arranging a sprinkler system so that the water can be easily shut off, and of seeing that those in charge of the premises know how to shut it off. If the sprinklers were actually fitted up with no provision for cutting off the water when it had done its work, we can only say that this shows a degree of carelessness or stupidity which deserved to be punished by a mishap.

AT Liverpool the other day, as appears from a newspaper cutting which has been forwarded to us, a man was brought before a local magistrate, Mr. Thomas Matheson, for selling indecent photographs. The following dialogue took place between the prosecuting counsel, representing the Corporation, and the magistrate:—

"Mr. Matheson: Are you aware, Mr. Marks, that there is on St. George's Hall, statuary that some people have objected to? Mr. Marks: I am aware that some have been objected to. Mr. Matheson: And that you are thereby setting a bad example to this young man? Mr. Marks: He is a middle-aged man. Mr. Matheson: You represent the Corporation, don't you? Mr. Marks: Yes. Mr. Matheson: And St. George's Hall? Mr. Marks: Well, I have an office there, but it did not emanate from my office. Mr. Matheson: Well, you are aware you have some statuary on St. George's Hall that is setting a very bad example to the public, and you are asking us to fine a man for doing what you do yourselves? Mr. Marks: These photographs are very obscene. Mr. Matheson: And so are the other things too, and it is far worse, because people who set the example ought to have known better."

These remarks, we presume, refer to the bas-relief by Mr. Stirling Lee on the exterior of St. George's Hall, in which a nude figure of a little girl of tender age is introduced! That is perhaps the last and most stupid of the insults to which one of the most gifted of our younger sculptors has been exposed at the hands of Liverpool official wisdom and cultivation.

THE INTERNATIONAL CONGRESS OF ARCHITECTS, PARIS.*

AT the fourth sitting of the Congress M. Lefort (Rouen) delivered an address, in which he gave strong support to the views of M. de Baudot, and emphasised the point, calling for the decentralisation of scientific instruction. The result of the present system was that all opportunities of architectural instruction were concentrated in Paris, and the great provincial centres of France were deprived of them. The speaker said he fully appreciated the value of the work done in Paris, but the programme must be extended so as to include the subjects prescribed by the conditions of modern society, for unless these were satisfied the education of the architect would be for ever recommencing at the foot of an inclined plane, and the teacher would be condemned for ever to roll up the rock which would eventually crush him. The question of reform in the programme touched even the existence itself of the architect, who must be not only an artist but a man of science,—a *savant*. Plato's definition of the beautiful would remain true as long as the world and humanity should last, but the conditions of the realisation of the beautiful were for ever changing. It was the spirit of the *savant* as well as the spirit of the artist which had to be created in order that the architect might be a creator and not a mere imitator—in order that, in seeing the works of past masters, he might dream of new combinations; and he must be himself a master of the work in order that he might clothe his intangible dreams with bones and flesh. He must not only have a knowledge of drawing,—of perspective especially,—but he must study the influence of climate with its infinite varieties and the effect of local surroundings which in themselves always tended towards the trivial and the commonplace, but could not be without danger neglected. Actuality and local colour were points which no true architect neglected, but how were these to be understood unless the architect was enabled to study among his local surroundings and form his artistic education in sympathy with the *genius loci*? To Paris they must come to study their dear master, Charles Garnier, to study Philibert Delorme, but while every enterprise which was undertaken in the

* De Nominibus Fundatorum Hosp. S. Johan. Jerusal. in Anglia. *Monastic. Anglic.* vi. 932. Edit., 1817-30.

† At No. 157, Leadenhall-street, a house associated with memories of Nelson; rebuilt in 1881-2.

* See *Builder* for June 29, p. 465.

provinces was directed by a committee sitting in Paris which gave its directions and prescriptions upon every detail, the student who desired to rise in his profession was compelled to go to Paris and to forsake that *genius loci* which it would be the part of a wise system to preserve with jealous care.

The President, as a member of many of the committees attacked, protested that while such committees necessarily had to decide upon details which involved questions of cost, they studiously avoided all interference with questions of art or design, so far as these were independent of the question of cost. Never in any such committee of which he formed part had he presumed to intervene in a mere question of art.

M. de Baudot also protested in the same sense. If M. Lefort had facts to cite which proved his contention, as he maintained that he had, let him produce them, and let them be inquired into. For his part he could affirm that he had never known a case of such interference with the free action of local architects as had been alleged by M. Lefort. He repudiated entirely the charge that Paris showed any jealously towards the provinces.

In reply, M. Lefort disclaimed any disposition to confound the question of decentralisation in education with the question of political unity, which was a natural necessity of the country, and if they challenged him to cite instances of the undue interference of Paris with the freedom of action of the provinces, he was prepared to give them. He would not communicate them to the Congress, but was prepared to lay his proofs before the President.

Mons. Paul Wallon, Architect of the Government, introduced the subject of public competitive examinations, and with it the question of a reform of education in another form. He cited the resolutions of various previous Congresses upon the subject, from 1861 to 1878, some of which recommended a jury too comprehensive, and others a jury upon lines too narrow. He recommended to the Congress to reaffirm the resolutions of the Congress of 1878, which had succeeded in avoiding both extremes.

After some remarks from other members, Mr. Spiers, F.R.I.B.A., Master of the Architectural School of the Royal Academy of Arts, London, and one of the vice-presidents of the Congress, intervened for the first time in the discussion. Speaking in French, he said he had great pleasure, after an interval of eleven years, when he had taken part in the last International Congress, in again assisting at their deliberations as a representative of the Royal Institute of British Architects. He would endeavour to confine the remarks he proposed to make as much as possible to the practical side of the various questions. The question then under discussion was one of practice rather than one of principle. The questions of competitive examinations and of a compulsory diploma were not all of the same importance in England as in France. All that they had been able to do in England was to make a beginning in the teaching of architecture, and that question was the most important for the interests he represented. It might be said that in England they had no regular school of architecture. When the Royal Academy met in 1870, at Burlington House, for the first time a kind of school of architecture had become possible. As he (the speaker) had studied architecture in England, France, and Germany, and his name had become associated with the movement, then commencing, of the development of architectural knowledge, he was placed at the head of the School, and given an opportunity of putting his system to the test. The pupils only came in the evening, and they came with all sorts of differing ideas, which it was impossible to reduce to uniformity. In 1877 or 1878 an architect who held an eminent position, Mr. Street, demanded that architecture should be made the subject of special study, for without this the high character of the art could not be maintained, much less advanced and improved. Mr. Street threw all his energies into the work, yet, although he was a man of great power and influence, it was not till the end of three years that the fruit of his labours began to be apparent. There were two different ways of looking at the question, the Classic and the Gothic, and he (the speaker) was forced to trim, in order to run with both currents.

The question of diplomas had been long discussed in England. In 1862 the Institute of British Architects instituted an examination for architects, but as it was facultative, not more than 100 persons had submitted themselves to it in eighteen years. In 1878 the Council of the Institute resolved that at the end of seven years the examination for the admission of Associates should be compulsory, and that after 1882 no one should be admitted without having passed the examination. This became generally accepted, and within the seven years a great many Associates had been admitted on the new conditions. The Council followed up their resolution by declaring that no Fellows would in future be admitted without having first been Associates. The practical result was that it would be difficult to find in London more than two or three architects of repute who were not members of the Institute. A single examination had been found sufficient, and at present, besides the preliminary examination, there was an examination three or four years later, which corresponded to the Baccalaureat in France, and at the age of twenty-two or twenty-three a third examination had to be passed for admission as an Associate of the Institute.

In 1884 an architectural association had proposed a Bill to Parliament for a compulsory diploma for architects, but, as it was proposed to apply to surveyors, who were in some way connected with engineering, it was opposed by the three representative bodies of the architectural, engineering, and surveying professions, and was lost. Another Bill was now proposed, and he hoped it would meet with a similar fate, because it proposed to admit all those who were at present in practice as architects, and that would give undue *prestige* to incompetent men.

The address was much applauded, and the thanks of the Congress were accorded by the Chairman to Mr. Spiers for his interesting and important communication.

The subject of a benefit fund was introduced by M. de Joly, and a brief debate ensued; after which M. Paul Gout was afforded an opportunity of replying to M. E. Guillaume, who had defended the system practised at the École des Beaux-Arts.

Mr. Spiers briefly described the system of study of architectural monuments introduced by the late eminent English architect, Mr. Burges, which was chiefly characterised by the method of comparison by actual measurements. The results of this system of measurement had been found very striking forty years ago, when Mr. Burges, architect of the Gothic cathedral of Lille, had produced work of so high a character that he was believed to have discovered and imitated the designs of some architect of the Middle Ages. All that Mr. Burges had done was to measure. His system was the outcome of a physical defect. Burges was short-sighted, and as he could not gather in the ordinary way a proper idea of the proportions of the edifices he set himself to examine, he had perforce to resort to this device of actual measurement. All the precious monuments of Beauvais had been thus measured. He had adopted the principle in all his travels, and he had thus studied all the cathedrals of France. (Great applause.)

The question of copyright in works of art, as it affected the architect, was then brought up by M. Lucas, the secretary, who strongly urged the adoption of the resolutions of a sub-committee appointed early in 1889 to study the question. The following were the principal points in the resolution:—

1. The architect ought to possess the same right of controlling the reproduction or copying of his architectural work that is possessed by the painter, the sculptor, and all other artists.

2. The architect, like every other artist, should reserve to himself the exclusive right to reproduce, or authorise the reproduction of, his work; and any law which might be made in favour of the protection of any artist should apply to the architect.

3. Any architect who had conceived a plan of an edifice or directed its erection, should have the right to inscribe upon it his name and profession.

The committee considered it desirable that artists, including architects, should adopt a plan common in leases and insurance contracts, and give receipts for moneys received for artistic work on printed forms, containing an appropriate protecting clause, which could be struck out if insisted upon, and if the artist preferred for any reason to forego his rights in any individual case.

M. Dognée (Liège) argued very eloquently and cogently for a simpler formula, by which the architect's right over his work should be declared to be as complete and absolute as that of the author over the offspring of his brain. He combated the views expressed by Victor Hugo at a congress in 1878, when he preached the doctrine of the universal right to copy or appropriate anything a man pleased.

M. Charles Garnier and M. de Baudot were inclined to favour the more liberal views of Victor Hugo, but there was a general consensus of opinion in favour of the views advocated by M. Dognée, who was requested to formulate a resolution to be submitted to the Congress, and, if approved, to the Minister expected to preside at the closing sitting of the Congress.

The sitting was then adjourned.

Before the delivery of the address of M. César Daly on "Advanced Studies in Architecture," to which it had been agreed to devote the whole Thursday morning sitting, and after the Secretary had read the minutes of the previous sitting, Mr. Spiers presented to the Congress a number of documents, on behalf of the Institute of British Architects, whose President, Mr. Waterhouse, R.A., and Secretary, Mr. W. H. White, had taken their places on the dais beside Mr. Charles Garnier, who again presided. The documents consisted of the Charter of the British Institute, its Calendar, a pamphlet entitled "Hints to Workmen," another called the "Conservation of Ancient Monuments," and five papers relative to the Institute examinations. Other documents were handed in, including the conclusions of M. Dognée on "Copyright," of M. Lefort on "Decentralization," and, on the motion of M. Ch. Lucas, a vote of condolence was passed to the relatives of an architect of the Government, M. Cernusson, just deceased, who had long been prominent in all public movements.

M. César Daly was then called upon to deliver his lecture, which took the form of an extempore address, illustrated by diagrams.

The general position assumed by M. Daly in regard to the subject which he has latterly made his own may be briefly stated thus: During a doctrinal period of Society, architecture has a style. During a period of transition between two doctrines, architecture has schools. These schools have led to a state of eclecticism, which has no accepted principles or doctrines of its own. A general or collective æsthetic principle exists no longer; we have abandoned the æsthetic evolution of antiquity and of the middle ages equally, and have fallen into individualism, a state of things which deprives architecture of its grandest characteristic, that of expressing the collective feelings of a civilisation. That is the actual state of architecture: how are we to emerge from it? By creating a *terrain* on which the débris of all the past schools could be united, without contradicting their position in the past, on the neutral territory between eclecticism and a scientific *æsthétique* based on the unchangeable laws of architectural construction and design. The recognition of modern requirements, of the immense resources arising out of new materials and methods, the intelligent employment of great and important discoveries of modern science in the art of building; all these influences together could build up a logical and incontestable basis on which all schools could meet, with the full consciousness of the fusion effected between them. The last stage would be the æsthetic evolution of the new architecture which would arise, and which would be the expression of the tendencies by which the new era of civilisation was distinguished from previous civilisations. Past eras had been characterised by the prevalence of war, of religious enthusiasm, of class privilege; the present and future seemed likely to be characterised by the love of peace, by the *droit communal*, the prevalence of industry and commerce.

M. Daly went on to say that he did not ignore what had been done in France of late years for the encouragement of advanced study, and particularly for the study of art, but he regarded all that had been done as only a commencement. The more elevated their art the more proud they should be of it, and the more ready to help in its advancement. He did not merely desire to nationalise advanced study, but wished to extend it to the whole world; he desired to see it not merely general, but universal. In the remarks he was about to make, if he made no mention of the Church, it must not be supposed that he had forgotten all that the Church had done for their art, of which

it had been a sovereign protector. But he wished to discuss the subject in a purely scientific spirit, and he would endeavour to do so without for one moment forgetting the enormous magnitude of the subject, of which he could but touch the fringe. He hoped that fifty years spent in the profession of architect would be sufficient justification for his undertaking so great a task, and as it was extremely unlikely, at his time of life, that he should be able to take part in another international congress, he would leave that effort as a legacy to his art,—a last service rendered to that art of which he was so proud.

Great progress had been made in Europe in the popularisation of higher studies. In France they called it secondary instruction, and it went by other names in other countries; but he extended the signification of the term, and when he spoke of advanced studies in architecture he meant much more than architectural composition. He meant the term to include the study of history and science under all its forms.

For the advancement of the scientific study of art, they had the gift of a noble man, Duc, an architect as well as an artist, painter, and sculptor, who devoted two-thirds of his *grand prix* of 100,000 francs to the encouragement of advanced study. He asked the Institut to undertake the administration of his gift, and, on accepting the task, it proceeded to found a prize competition which was, in its way, admirable, but which, probably, did not respond altogether to the aspirations of Duc, who had become a convert to St. Simonianism—a form of faith in which the doctrine of historic evolution was strongly developed. Commenced by the great Swedish naturalist, subscribed to by Cuvier, extended by Lamarck, and completed by Darwin in his theory of the survival of the fittest, the true science of evolution had rolled forward and rolled out until it embraced existence under all its forms. Architecture was, therefore, necessarily included in its embrace; indeed, he was of opinion that the very existence of architecture depended upon the comprehension of the principle.

Advanced study had for its object to give to architecture a unity which had always been wanting. The diagrams would show how the principle of evolution might be traced in architecture. Evolution was the result of unconscious progress. Unconscious progress, unlike designed progress (*progrés calculé*), was the result of the working out of natural laws. He had advised Duc that he would have done better to offer a prize for the study of the study. The Institut made a wise arrangement in the form in which the prize was offered, but it was not what Duc had anticipated, whose views were in fact more than a little Utopian. How could young people reason upon evolutive architecture before they had studied the application of the law of evolution to architecture? How could they give proof (by the prize test) of possessing knowledge which they could only have in consequence of knowing what they had never studied?

The main scope of the remainder of the lecture, which was most eloquently delivered throughout, but was too long for us to report in full here, was to draw attention to the universal character of the laws governing the development of form, and which were illustrated in the designs of nature as well as in architecture, and to recommend the comprehensive study of the architecture of the past along with the history of the civilisation of the past, as a basis of direction for the future. One of the diagrams which were exhibited went to show that historic analysis of this kind would lead to the conclusion that certain forms or combinations of forms, straight and curved lines, had predominated in certain epochs of architecture and of civilisation, and that we had yet to form an architecture dominated by the higher order of curves, instead of straight lines, circles, and their combinations. If this seemed at first rather a vague assumption, M. Daly could at least point to some very interesting and suggestive connections between line and sentiment embodied in words that were in constant use, though their original meaning was forgotten. What was "aversion," what "inclination," if not a picture of a line falling away from or towards us? Love and affection would be fitly symbolised by the oblique line in one direction, and hatred by an oblique line in the opposite direction. The vertical line expressed indifference, the horizontal line repose. The lecturer saw in a grand full curve the expression of joy and triumph, and in a flat or feeble curve the expression of fear or pain. In conclusion, M. Daly made an eloquent appeal to Paris and the provinces to constitute corps and societies for the encouragement of advanced studies in architecture. He desired to see in France, more than elsewhere, a disposition to take up such serious studies, but he also desired to see them prosecuted by all the great nations of Europe, by serious England, and by the great hemisphere of America. It was necessary to elevate our age, and the means to do so offered itself in the advanced study of scientific æsthetics (loud and prolonged applause).

The President (M. A. Normand) who at the moment occupied the chair in place of M. Charles Garnier, speaking for himself and his colleagues, thanked the lecturer with all his heart.

M. Daly having been requested to present his formal conclusions, the morning sitting concluded.

Thursday afternoon having been set apart for voting upon the resolutions of the Congress, there was a large attendance, and before the close of the proceedings a great deal of heat had been generated. Several members were called upon to speak for the last time on the question of a reform in the teaching of architecture, raised by M. de Baudot; among these being M. Émile Trélat, who, while sympathising with M. de Baudot's objects, could not accept his special views; M. Coquet, who espoused those views; M. Guillaume, who defended the existing system of instruction; and the Chairman, M. Charles Garnier, who earnestly sought to keep the peace between the rival factions. After a number of impetuous interruptions, particularly on the part of M. de Baudot, during which M. Charles Garnier, exhausted with his efforts to maintain order, again vacated the chair in favour of M. Normand, a resolution was proposed and carried by fifty-three votes to sixteen, to the following effect: Considering that the Congress is international, and cannot, therefore, with propriety decide a question purely French, it passes to the order of the day. This result was mainly brought about by the declaration of Baron H. de Geymüller, the Swiss delegate, that he would not vote upon the question, since he was a foreigner. The same reason was employed to shelve the decision with regard to the compulsory diploma and the other subjects discussed, except that of artistic copyright, which was admitted to be eminently international. But, in the case of these propositions, it was resolved to refer them to the next Congress, which will be a national one.

With regard to the question of artistic copywright, the majority came round to the views of M. Dognée, of Liège, who advocated the complete assimilation of the rights of architects in their work to the rights of authors, musicians, painters, sculptors, and other artists who have obtained the suppression of any reproduction of their work without their consent. It was resolved to submit this resolution to the representative of the Government at the closing sitting of the Congress at the Trocadéro Palace. The sitting was then adjourned, and the members of the Congress subsequently visited the new Lycée Molière at Passy.

The Congress resumed its sittings on Friday under the presidency of Mr. Spiers. The subject was "The Cupolas of the East and of the West." M. Gosset, the lecturer, enforced his observations by constant reference to drawings of the chief religious edifices whose construction was fitted to throw light on the point under discussion. He made a rapid sketch of the early history of the cupola, examining in detail what light modern discoveries had shed upon its introduction, and passed in review the structures of Thebes, Palestine, Syria, Greece, Turkey, Russia, China, and Asia to support his propositions. Layard, for example, found among the ruins of Nineveh a house surmounted by a hemispherical cupola, and, in later times, it had been ascertained that the Holy Sepulchre was covered with a roof of cupola form.

He dwelt particularly on the influence which Christianity had wielded in the development of the cupola. Up to the time of Constantine's accession to the Empire, and his conversion to Christianity, the churches of the new religion had preserved the form of the Roman basilica, but afterwards, in the erection of the Church of St. Sophia, Justinian's idea was to give a new form and a more magnificent one in that structure, which he had intended to make the most vast and grandiose that had ever existed. One object of the selection of the cupola form was to permit of all the decoration possible throughout the whole of the interior surface of the church. Another element aimed at was to give pre-eminence to the height. Churches whose height was equal only to their length,—churches of the judicial order, such as were the preceding structures,—could not be found appropriate to Christianity. Christianity, in introducing a perfectly different idea of life from the philosophies which had gone before, required to express in its architecture a new idea. With the ancient philosophies the type of life was a voyage, through which one had to pass with as much dignity as possible, but beyond it there was no horizon. The Christian idea transformed it into a struggle here for perfection, and for the celestial recompense at last. Now, never was this predominant idea made more conspicuous or more characteristic than in the Latin churches, where the height was sometimes double the length. One characteristic of the cupola was that it presented a series of cupolas in perspective, but still making only one. It gave a prominent place for the figure, which struck the beholder from every part of the edifice,—that of a God pantocrator, often represented as in the act of blessing. Thus the cupola was characteristic of Christianity, as was evidenced in St. Peter's at Rome (which formed a monument in a monument) everywhere imitated in St. Paul's in London, where Christopher Wren had made the cupola conic in order to avoid too much extension at the base; and was being more and more appreciated in modern times, as in the case of a new structure at Berlin, and one which was about to be erected in Liverpool. There was again their own dome of the Invalides, which stirred the admiration of visitors from all parts of the world, but the preoccupation of Mansard when he designed it was rather to give satisfaction to the desire of the great King Louis XIV., giving an idea of height,—*gloria in excelsis*,—than to give any idea of religious unity. And, indeed, in many churches the cupola had become suggestive rather of the theatrical than of the ecclesiastical idea. The nineteenth century had produced a particularly grand specimen of the cupola in the Halle aux Blés; another in those of the Bibliothèque National, which would last as long as Paris lasted; and another in the Church of St. Augustin. The Pope, Leo XIII., in a conversation he (M. Gosset) had with his Holiness, who, as they knew, took an intelligent interest in questions of architecture, expressed himself in favour of the cupola, as there was no form which enabled the faithful to gather round the altar in larger numbers. Finally, excusing himself for not having prepared his paper more in order, the lecturer, in addition to what he said as to the recommendation which a series of cupolas possessed of enabling the builder to stop at any stage desired, pointed out how much more economic was the cupola form in respect of the material necessary compared with what was required for the dome.

The President said there were a few points which it would be well that M. Gosset should add to his excellent paper before it was printed. He made a brief criticism on the paper generally, and expressed disagreement with the author of the paper as to the community of origin of the Pantheon and the Baths of Agrippa. The walls of the Pantheon had been several times examined, and never had there been found the slightest trace of means for the communication of heat or warming as in the latter structure. Again, the covering-in cupola form over the Holy Sepulchre was of comparatively recent date; at first it was not built over.

A vote of thanks was unanimously awarded to the lecturer.

In the afternoon a distribution of prizes took place under the presidency of the Minister of Public Instruction and Beaux-Arts.

On Saturday, the members again assembled at the École des Beaux Arts, and, under the presidency of M. le Baron de Geymüller, Switzerland, took up the consideration of two papers which had been postponed at previous meetings. The first was that of M. Chenevier, who proceeded with his "Study on Fires in Theatres." He referred to the destruction of the Opera Comique, and to the prominence that disaster had given to the importance of providing all the means possible for securing the safety of the spectators of theatrical performances. For himself, even yet, he could never help having a feeling of insecurity and

danger whenever he happened to go to the theatre.

Treating the question very exhaustively, and drawing from the destruction of the theatres at Nice, Rouen, Oporto, and Exeter, the lessons they conveyed, he was generally of opinion that the security of the public was to be assured rather by the capacity given to the building of resistance to the fire, than by the multiplicity of the means of egress or *sauvetage*. The gist of his paper may be summed up in his concluding words, which, translated, were:—"I have pointed out with moderation the situation of affairs. I shall not insist more than is proper on the necessity of protecting these monuments against fire. I shall only add that if the security of the spectators may be considered at present as almost assured in the Paris theatres, there is still incumbent, and especially on the principal ones, the duty of protecting these edifices, as well as the works of art which they contain, against any attack of fire which might declare itself through the piling up of masses of inflammable decorative drapery. It would be sufficient, indeed, for a fire otherwise of little importance to irremediably destroy their *chefs d'œuvre* of paintings, of sculpture, and even of architecture, which they all admired, and of which they had the task of taking care. I consider that the necessary protection would be afforded in general by securing the non-inflammability of the decorations; and I have the honour of submitting for the approbation of the Congress a proposed resolution, thus formulated:—

'Considering that the non-inflammability of the decorations and of the woodwork of the proscenium of a theatre is the first condition of the resistance of such an edifice against a fire, and that the security of the spectators is by this means assured, the International Congress of Architects, meeting in Paris in 1889, expresses the opinion that in future the decorations of the theatre, and the machinery connected with the scenery, should be made non-inflammable during the whole period of their employment.'"

The resolution was adopted by acclamation.

M. Bauer had a paper on the same subject. He said that he participated in the opinion of M. Chenevier with regard to the feeling of insecurity he had in sitting out a piece at the theatre. All theatres were destined to be burned. But, while M. Chenevier laid special stress on preserving the building, he had occupied himself particularly with the question of the security of the public, and that of providing means whereby they would have time to escape on the outbreak of a fire. He illustrated, from a drawing of the Opera Comique, how the fire had broken out, and the course of its progress, and pointed out especially the part which the chandelier always played in attracting the air-currents. Now, in considering this point, the idea suggested itself to him whether it was not possible to profit by this fact, and he proposed to do so by establishing an air communication from the chandelier to a chimney to be constructed in theatres, and which in the case of fire would carry the flame and the smoke into this chimney, and thus keep the building free of both, and afford to the spectators time to escape by removing the danger of suffocation. The air-pipe would be worked by a button to turn it on in the chimney, and would be under the charge of a man who was to be absolutely secure himself from danger by having an external staircase reserved entirely to himself, the chimney being located near one of the side-walls of the theatre. He had explained his theory to the chief of the Fire Brigade and to several societies, and also before meetings of the general public, and those competent to judge had expressed concurrence with his views, and approved of the plan as likely to be successful.

In the discussion which followed, the theories of the author were combatted on some points by MM. Chenevier and Bousard; but, on the motion of the President, who expressed himself favourable to the theories of M. Bauer, it was resolved to recommend the construction of an international theatre on the principles now laid down, so as to demonstrate their practicability.

The next subject discussed was that of the means in use among the ancients for the warming of baths. The author of the paper on this topic, but which principally regarded the heating of houses, was M. Bousard, who showed how the Romans warmed their houses by heating them from the basement, the temperature diminishing according to the elevation of the apartment. He had himself planned several houses on this principle for clients of his, and the result had proved most satisfactory. A uniform temperature was secured, agreeable and wholesome beyond description. Compared with this plan of the ancient Romans, the houses of the moderns were constructed rather for the creation of draughts.

On the motion of the President, a hearty vote of thanks was awarded to the lecturer for his interesting paper.

The members then adjourned to meet at the Trocadéro in the afternoon.

The members of the Conference assembled in full force, accompanied by several lady friends, in the Salle des Congrès, in the Trocadéro. The chair was taken by M. A. N. Bailly, President of the Congress.

M. Lucas read his report of the work in which the Congress had been engaged. Among the subjects which had occupied their attention there were two of special importance,—the teaching of architecture in the École des Beaux-Arts, which could not be properly considered international, and in which the foreign members of the Congress could not freely take part; and the question of architectural copyright, which was eminently international. On the latter they were all in accord; and he asked the delegate from the Minister, in appealing to his high political situation, to support the resolution of the Congress on that point, although the terms of it were not yet in print. The resolution in question simply claimed for the architect the exclusive right of production in his work such as literary authors and others enjoyed, and the right to forbid any such reproduction without the written authorisation of the architect. It was this resolution that he asked M. Tolain to support at head-quarters with the Minister of Public Instruction (applause). He (M. Tolain) had witnessed their exhibition, and had expressed the satisfaction it had afforded him; but in addition to the prizes which were offered, it was well to remember that once a year they sought out in all France all who in connexion with the building trade had distinguished themselves in any branch, and brought them to Paris to assist at their annual fête (applause). The Secretary also recommended to the support of the delegate their movement in favour of the formation of a professional syndicate.

M. Eugene M. Dognée, of Liège, Member of the Society of Antiquaries of France, then gave an address on the Etruscans. This was again a brilliant oratorical effort, a lively picture being presented of this ancient people, whose very name, said the learned lecturer, had perished. But they were a people of astonishing genius in architecture and art, and the authors of much of what the Romans had claimed as their own. It was they who invented the arch,—that form from which the cupola and the dome were developed. Some authorities to-day disputed this claim made on behalf of the Etruscans, and contended that none of the monuments attributed to the Etruscans contained evidence of the existence of the arc anterior to its use by the Romans. But he did not wish to enter into details on the point. The truth was that the Etruscans had founded three great political confederations prior to the growth of the Romans; and the Romans when they had conquered the Etruscans were careful to hide all traces of the artistic greatness of that people and of their own indebtedness to them. "Woe to the conquered" was the maxim of the Romans,—a maxim which they had carried out with respect to the Etruscans even to the concealment of their profound and astonishing advance in the arts. Nevertheless, as was evident from the Roman authors, whenever an edifice of surpassing importance was to be raised, whenever a monument of particular excellence was to be erected, it was to some captive Etruscan that the design was committed. And, to-day, in travelling through Tuscany, it was the same race that was still living and acting, and not only in many of the monuments that had been since built, but also in many of the works of our own day, it was the influence of the Etruscans that was yet visible, it was their genius that was still subsisting. It had been sometimes claimed for Christianity that it had elevated woman to the dignity which belonged to her, and made her the equal of man, a position which never before had been assigned to her. But it was, to his mind, established that the place of woman with the Etruscans,—the position of the mother,—was as highly honoured as since the advent of Christianity. We found in the dwellings of these people that had been brought to light the portraits of the master and mistress of the house in the place of honour, just as in the houses of well-to-do families of to-day; and, more than that, the genealogy of the children was always established according to the name of the mother. The religious sentiment was also strong in this people; they were conspicuous not only for their piety to the dead, but also for the gifts which they placed in their tombs, and which were proof of their belief in a future life. He found in these underground mansions (and he had entered some forty of them) not only all sorts of objects supposed to be pleasing to the departed, but even the walls were filled with paintings of other things,—for which apparently there could not be found room in these chambers of the dead. The Etruscans synthetised their art, and their memorials,—some of them in close imitation of the Assyrians,—showed that they were a people much above the reproach of being exclusively utilitarian. From an artistic point of view, the predominant passion of the Etruscans was the display of the truth; their works of art were marked by a *finesse*, a delicacy, a grace and accuracy (and after all art was only the faithful imitation of nature linked with the ideal of the artist) that was astonishing. If "woe to the conquered" had on the one hand been the law of the Romans, another law also existed, and that was the law of "glory to the conquered," for a great people would prove and assert its greatness notwithstanding every effort to crush it, being possessed of a persistent vitality.

M. Tolain said he thought he could say, without promising too much, that he would lay their request before the Minister with great pleasure, and that, so far as depended on him personally, with the greatest desire that it might be accorded. But he wished to point out that, viewed from a legislative standpoint, it was to be considered how far the granting of their request was consistent with the public interests. This right of property in works of art, industry, commerce, and architecture was one of the most complex of the epoch. Now, as to the establishment of a syndicate. That reminded him that he had spent a considerable part of his life in the furthering of this principle. Such associations had often been opposed in the first case from a belief that they were combinations for the purpose of attack; but he was convinced that the society would conquer the right of constituting themselves into a syndicate. One point to which he ventured to call their attention was that of the necessity of improving the dwellings of the Paris workmen, so as to promote the sentiment of personal dignity,—of studying what was the most suitable sort of house or habitation that could be erected for him within the city, instead of sending him, when his work in his *atelier* was over, to a dwelling beyond the fortifications, where he could no longer be constantly under the influence of those works and images of art which exerted so powerful an impression on the imagination and the taste. This was, he thought, a point of capital importance, and he begged to recommend it to their most serious attention.

The Congress was then declared closed.

THE KINGSTON SEWAGE-WORKS.

THERE was a gala day on Saturday at the Kingston Sewage Works to celebrate the opening of the finished works. There was, before the close of the past year, an official ceremony in order that the much-respected Mayor, Mr. East, might receive during his term of office a well-earned and well-deserved recognition of the valuable services he has, during many years, devoted to the ancient borough, but the works then, although in partial working, were not complete. It was their thorough order, neatness, and success which gratified everyone present, and made Saturday a red-letter day, not only for the Native Guano Company, who were entertaining, but for everyone concerned. The selection of guests was very well advised. The Royal Engineers were represented by Sir Lintorn Simmons, G.C.B.; civil engineers by the veteran Thomas Hawksley; and there were many members of the Local Government Board, the Corporation of London, the London County Council, the Surrey County Council, the Corporation of Kingston, the Surbiton Improvement Commissioners, the

Hampton Wick Local Board, the Guildford Corporation, and the Mayors and officials of many other important towns.

The works have been carried out very nearly upon the lines originally laid down; the few alterations being slight, but nevertheless important. In view of coming events, the Kingston Corporation some years ago acquired a valuable property extending along the river-side, near the outfall of their general system of drains, and containing in all about fifteen acres of land. The present works stand on the first portion of this land, the site being about two acres in extent. They consist of boiler and engine house and the factory of the Guano Company, all in one building. Adjoining this is a series of eight precipitating tanks, in which the purification of the effluent water is effected. The sewers of Kingston have for the most part been laid many years ago, but improved when and where opportunities permitted. Similarly, from time to time sections for the provision for storm-waters have been laid. Formerly the outflow of the polluted sewage was direct into the Thames by an egg-shaped sewer, 5 ft. in vertical diameter, with a gradient of only 1 in 2,000, and the mouth of which was almost submerged in the water. This sewage is now cut off at about 30 or 40 yards from the river-bank, and its contents turned at a right-angle into the penstock of the new works. A new broad road is being made by the Corporation over a considerable length of this sewer from the Thames to the railway-station. The Surbiton sewage is brought through Kingston in a closed iron pipe to a penstock adjoining the Kingston penstock. Iron gratings here stop all garbage, and the arrested matters are taken away and buried in the soil. From the penstocks the combined sewage flows on to the pumping-station. The Surbiton sewage, after passing through a meter, falls over into Kingston well, where the "B.C." mixture of clay, charcoal, and blood, is poured in. The mixture so treated is pumped by Gwynne's centrifugal pumps through a second meter, which registers the total quantity. The current of sewage thus treated flows on in an open channel to the settling-tanks, receiving at a few yards' distance from the meter a constant run of alum-water. As the treated sewage flows on, it can by a system of gates be turned into any one or more of the precipitating-tanks.

We return, however, to the boiler and engine rooms, and to the other details of the guano factory. The boilers are three in number, of the multitubular type,—one of 80-h.p. and two of 40-h.p. each. The engine-room is most striking and novel, completely different from ordinary practice in sanitary engineering, Willans high-speed tandem engines being used for every purpose. Their smallness and neatness make a vivid impression. There are two driving engines of 40-h.p. each, one being commonly held in reserve. There are then three Gwynne's "Invincibles," each driven by a high-speed Willans engine of 15-h.p. coupled on to the spindle of the centrifugal pump. Each pump can raise 1,650 gallons 12 ft. high per minute. The three Surbiton pumps are of the same nature, and driven direct by similar engines, only they are smaller, and throw 750 gallons per minute. The settling-tanks, which receive the treated sewage, are each 85 ft. long by 50 ft. broad, and are divided by a central wall nearly three-quarters of the entire length, giving plenty of time and very slow motion to the fluid sewage. The water, after passing two of these tanks, runs off by a trumpet-mouthed standpipe, and, under ordinary circumstances, is clear and bright, without the slightest odour. These tanks are about 6 ft. deep, and their floors slope towards the front walls, along the inner side of which there is a long sump, from which the semi-fluid sludge is drawn off by the sludge-pump to a circular sludge-well. From this well the sludge is drawn as required into a set of four iron closed cylindrical accumulators by vacuum, and, as each is filled, an air-blast of 100 lb. pressure to the square inch blows the contents to an upper floor of the guano factory. The water is there pressed out of it by strong, specially-designed presses, and the dark, clay-like residuum is passed, broken up, down a hopper into a revolving drying cylinder below. The fumes given off in this drying are very offensive, and, if allowed to escape, would cause nuisance to the neighbourhood. They are treated, however, with great ingenuity and perfect effect. They are first driven by a fan into a chamber filled with brushwood, over which a continual water-spray is driven. They are next passed through a second chamber, and are then driven through a pipe below the furnace, and are completely consumed in passing through the fire. The condensed water passes to a receiver, and is treated by the "A.B.C." chemicals, as with the original sewage. The dried residue is the native guano. It is pounded into powder by the machines, and put into bags, and sold for agricultural purposes. The pumps and machinery for these manure-works are well selected, and very efficient for their various purposes.

The works have been erected by Mr. W. Cunliffe, contractor, to the designs and specifications approved by the Borough Engineer, Major Macaulay, to whom credit is due for the boldness with which he has applied the most modern inventions in this direction.

The total cost of the sewage-works is about 25,000*l*. The number of inhabitants in Kingston at the last census was 26,156; in Surbiton, 38,068. The sewage of both these places is now being fully dealt with. Hampton Wick, containing 2,500 inhabitants, is preparing to send its sewage over the railway bridge by Shone's pneumatic ejectors, which will raise the total population contributing the sewage dealt with to over 64,000 when the works are in full demand. They can, however, by a slight outlay be made ample for a population of 100,000.

The Company, we believe, has hitherto had no opportunity of working its process except in connexion with the sewage of small places like Aylesbury and Wellington College. The work that it has done in these places has proved satisfactory, but, inasmuch as the question of bulk is often the determining factor in processes of this kind, the Kingston experiment possesses a special interest. The Corporation have agreed to pay the Guano Company at the rate of 3d. in the pound on the rateable value of the districts connected with the works; the Company, on the other hand, undertake to treat the sewage in such a way as to produce a clean and inoffensive effluent water, such as will satisfy the Thames Conservancy authorities. The Company have also, of course, to reduce the solids to a condition that will cause no nuisance in the neighbourhood of the works. So far as inspection on a show day, such as was possible on Saturday last, went, the Company may fairly be congratulated on their success; whether that success can be maintained amid all our varying climatic changes and the idiosyncrasies of that fickle fluid, sewage, time alone can prove. There are many who decry all methods of treating sewage chemically, and certainly many of the processes adopted have created as great a nuisance as the one they were intended to abate. Irrigation processes, which have converted smiling pastures into stinking swamps; and lime-processes, which have produced an alluringly clean-looking effluent, which is death to all fish who come within its range, and which in warm weather often becomes nearly as foul as the virgin sewage, are largely responsible for the suspicion with which patent methods of dealing with a great problem are regarded. Still it is obviously short-sighted policy to see no good in one process because another has proved a disastrous failure. The befouling of our water-courses and of our sea-coast by the sewage of adjacent towns and villages will sooner or later have to be stopped, and the great truth realised that it is better for a district to adopt an expensive good process of dealing with its excrementitious refuse rather than a cheap and inefficient one, such as is represented by the emptying of the stuff into the nearest water-course, or on to the nearest seashore. Co-operative action with many smaller towns and villages might reduce the expense considerably. Take, for instance, the towns of Thanet; from Birchington to Ramsgate there are some five watering-places of note, some of which are befouling the sea that brings them their prosperity, and other places are doing the same thing. The favourite coast walks in almost every direction lead past, or will shortly lead past, outfalls of crude sewage. A very little power of grasping a life-and-death problem would show the local authorities that one great scheme of collecting the sewage of the whole of Thanet in the marshes between Minster and Sandwich, there to treat it chemically and run the effluent water into the sea, would remove danger of nuisance, and, in the long run, prove the cheapest as well as the most scientific and natural system. We refer to this matter here, as it is a striking instance of the absolute necessity of co-operation of localities such as has been adopted by Kingston, Surbiton, and Hampton Wick, in arranging for the joint treatment of their sewage by some tried process.

The sewage precipitates as it flows, and the effluent which runs off is undoubtedly "clear, bright, and odourless," and, as the well-known sanitary engineer, Mr. Baldwin Latham, after his inspection of the effluent produced at the Aylesbury Works by the same process, reported the presence of fish in the carriers, it is evident that the water is fit to pass into the river. The production of a practically pure effluent is, however, only one difficulty overcome. The solids or "sludge" have also to be disposed of. At the Kingston Works the stuff is dealt with in the way we have described, forming ultimately a granular black material, for which the Company state they can obtain as much as 3*l*. 10s. per ton.

This not being a chemical or an agricultural journal, it is not necessary here to enter into the question of manurial value, or as to whether farmers would long continue to pay 3*l*. 10s. per ton for stuff which must necessarily vary in composition, and which, consequently, cannot be sold by analysis. It is sufficient to point out that an inoffensive dry material and a clear effluent water can be produced from the sewage, without nuisance, in the heart of an important residential district. This seems to be done at a reasonable cost, and even if the so-called "Native Guano" had to be sold at 2s. or 3s. per ton, or even to be given away, the process would still merit the careful consideration of sanitary reformers. Let the rather hocus-pocus name of "A. B. C." be dropped, and undoubtedly a good deal of prejudice, which, consciously or unconsciously, was created by an unfortunate cognomen, will also disappear. Years of practical working are yet required to prove the wide applicability of the process, but the promise of success is, indeed, a fair one.

ARCHITECTURAL ASSOCIATION VACATION VISITS.

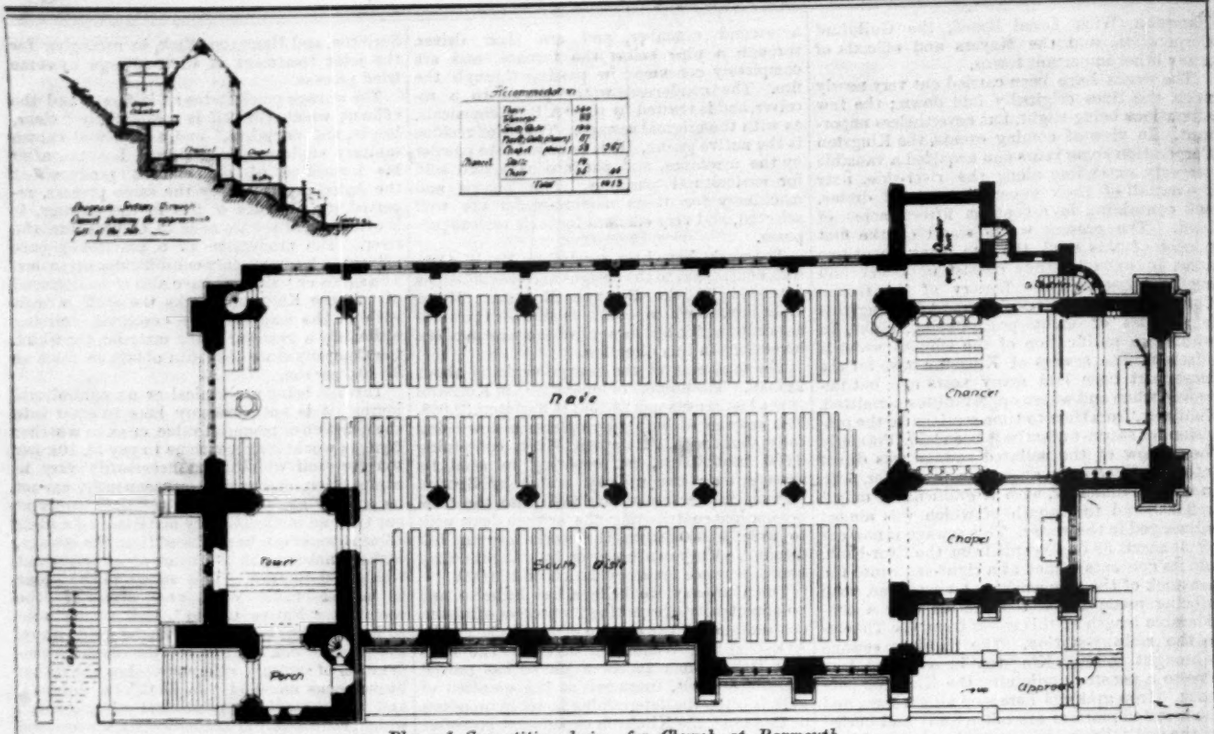
ON Saturday last the members of the Association visited the Halls of the following City Companies:—Merchant Taylors, Drapers, Brewers, and Skinners. Although they mustered at Brewers' Hall, in Addle-street, the first visit was to the hall of the Merchant Taylors, where they were received by Mr. Hilton Nash, who read an interesting paper on "Merchant Taylors' Hall." This we are obliged to defer until next week.

Mr. Nash afterwards conducted the members over the buildings, where the various treasures in the Company's possession were inspected, terminating with a visit to the strong-room where the plate is kept,—the golden snuff-box, the silver cloth-yard, and the mace, to which Mr. Nash referred, being especially noticed.

After leaving Threadneedle-street, the party proceeded to Throgmorton-street, and soon found themselves in the cortile of the Drapers' Hall. This is quite a modern building, being finished in 1881, though it stands on the site of the earlier Hall. The staircase leads from the lobby (divided only from Throgmorton-street and its busy stockbrokers by a pair of large glazed doors) to the first-floor, on which all the principal rooms are placed, surrounding the quadrangle noticed on entering. Passing through the drawing-room, with its Gobelins tapestry, the "Court" dining-room was reached, overlooking the gardens, of which but a small portion remains to suggest the original prospect from the windows before the blocks of warehouses and offices (still bearing the name of Drapers' Gardens) had sprung into existence. The original Hall was almost entirely destroyed by the Great Fire, being the most northern limit reached by the conflagration. The Company's plate was, however, saved, being hidden in a sewer in the garden. The Hall was rebuilt by Jarman, and again suffered severely from a fire in 1774. The present building was completed in 1881 from the designs of Mr. Herbert Williams. Marble, in columns, inlays, &c., is largely used in the decoration, the marble columns surrounding the Hall being monoliths of large size. Stained-glass and heraldic devices assist in the colour decoration, and the panels on one side of the Hall are filled with the portraits of royal personages. The arms and motto of the Company are noticed in all parts of the building, and are emblazoned thus:—*Azure*, three clouds radiated proper, each adorned with a triple crown *or*;

The Photatype Co., 393, Strand, London.

HOTEL COMMUNAL DE SCHAERBEEK, BRUSSELS.—M. Van Ysendyck, Architect.



Plan of Competitive design for Church at Barmouth.

Supporters, two lions *or*, pelletted. Crest, on a mount *vert*, a ram couchant *or*, armed *sable*. Motto, "Unto God only be Honour and Glory." The Company boasts of possessing seven original charters, each with the great seal, in good preservation, attached.

On leaving Drapers' Hall the party proceeded to Addle-street, in which is situated one of the most picturesque of the existing Halls. It belongs to the Brewers' Company. Passing through a rich English Renaissance gateway, which abuts on the street, the small courtyard is reached. The Hall extends along one side, and the principal floor is reached by an external staircase across the end of the court-yard. The ground-floor has an arcade with Roman Doric columns and three-centred arches; the windows and doorways are square-headed, and reach only to the level of the astragal of the columns, horizontal mouldings with bold volutes forming a head to the openings, while the space above is filled with carving. Ascending the staircase at the end of the courtyard, the Hall is entered through the "screens," which are a rich piece of work dated 1673. Corinthian columns, flanking a circular-headed doorway, and supporting a richly-carved entablature with a curved and broken pediment, form the central feature, while above, in bold relief, are the arms and crest of the Company. The end of the Hall behind the daïs has also rich carved woodwork. The Court-room is a small chamber, but very picturesque, with a very ornate fireplace, over which is an oval panel, which sets forth that—

THE
RIGHT WORSH. SR. SAMVEL
STARLING KNIGHT AND
ALDERMAN OF LONDON AND
WORTHY MEMBER OF THE
BREWERS COMPANY DID WAINSCOTT
THIS PARLOUR IN THE YEARE
1670 THE SAID SR. SAMVEL
STARLING BEING THEN
LORD MAIR. OF THE CITTIE
OF LONDON.

A visit was next made to the Skinners' Hall, belonging to the Company to whom Mr. Nash referred in his paper as having contested the right of precedence with the Merchant Taylors. The name of Budge-row, opposite Dowgate-hill, in which the Hall is situated, takes its name from the dressed lambskin called "budge," which was hung out in the row for sale by the early members of this ancient guild. One of the old chroniclers of the Company claims for it the honour of having enrolled "six kings, five queens, one prince, nine dukes, two earls, and a baron."

Illustrations.

NEW "HOTEL COMMUNAL," SCHAERBEEK, BRUSSELS.

THIS is the new Town Hall in course of construction for an important suburb of Brussels, and which is given here as an example of contemporary Belgian architecture in this type of building.

Although some of the detail will hardly recommend itself to English eyes, there is a fine breadth of effect about the façade, with its large ranges of mullioned windows. A certain degree of sober polychromatic effect is obtained on the exterior by the employment of stone of different tints.

The porch gives access to a large vestibule, from which a flight of steps leads to the *salle des pas perdus*, which is lighted with stained windows representing the arms of various corporations. The State staircase also leads from the vestibule to the first-floor. The Council Chamber and the Salle des Mariages are to be richly decorated with tapestries as well as with stained-glass windows.

A vote of 1,200,000 francs was passed by the authorities for the building, but the architect, M. van Ysendyck, claims to have succeeded in producing a building such as the authorities wished for, at a cost of 70,000 francs less than the estimate.

"PAUL'S WALK": A RESTORATION.

THE nave of Old St. Paul's, profanely spoken of in Elizabethan days as "Paul's Walk," was a splendid example of the later developments of the Romanesque style,—one of those, in fact, which almost call forth a regret that our Mediæval ancestors did not rest a little longer before passing on from the Round Arched style to the Early Pointed. Judging from Hollar's views and the measurements given by Dugdale, its proportions must have been very noble and its effect singularly striking. Its dimensions were, according to Hollar's plan, 300 ft. in length from the lantern-tower to the west front, 105 ft. in width outside the walls, 50 ft. from centre to centre of the nave piers, 36 ft. in the clear.* Dugdale gives the height of 102 ft. to the crown of the vaulting.

The pier arches were more lofty than is usual in Norman work, and the triforium consisted of a single arch in every bay, like that of Norwich Cathedral. The clearstory and vaulting were Early English, the clearstory windows having sharply-pointed heads, composed of such small segments of the circle as to appear nearly straight-sided. Hollar's view of the exterior of the nave (before Inigo Jones's alterations) shows them absolutely angle-headed, but in the interior views they are more correctly drawn.

* These dimensions are taken off the ground-plan, and differ from those given in Dugdale's text.

The original aisle windows had been replaced by large six-light Perpendicular ones, but the Norman circular windows which lighted the triforium remained down to the period of Inigo Jones's "restoration," when they were surrounded by Classical mouldings, &c. The great lantern-tower was Early English, and open to the church.

The rood-screen beneath it was a fine work, probably of the Early Perpendicular period, not unlike that of Canterbury Cathedral.

There were not many monuments in the nave of Old St. Paul's, and the absence of such memorials, in this part of the church, is a peculiarity which will also be remarked in Westminster; in the latter church, however, the deficiency has been more than amply supplied in later times. The only monuments of importance in the nave of Old St. Paul's were those of John Beauchamp, one of the first knights of the Order of the Garter, whose effigy was represented in full armour upon a fine altar-tomb. The other was the beautiful chantry chapel of Thomas Kemp, Bishop of London, who died in 1489. After the Reformation until the time of Charles I., the nave of St. Paul's was terribly desecrated; it was, in fact, used as a kind of market, and even previous to the Reformation there would appear to have been cases of persons buying and selling in this part of the church, as Nicholas Braybroke, Bishop of London, who died in 1440, issued a pastoral letter threatening with excommunication all those who should so desecrate the church. During the Commonwealth, "Paul's Walk," as it was called, was used as a cavalry stables, and for any other purpose which the Government of the time required. Under Charles II. it would appear to have been a kind of market for books, pamphlets, quack medicines, &c., down to the time of the Plague, when it was used as a "pest-house." At the time of the Great Fire it was full of scaffolding.

Our view, which is founded on Hollar's drawings, represents it as it existed about the year 1641.

H. W. B.

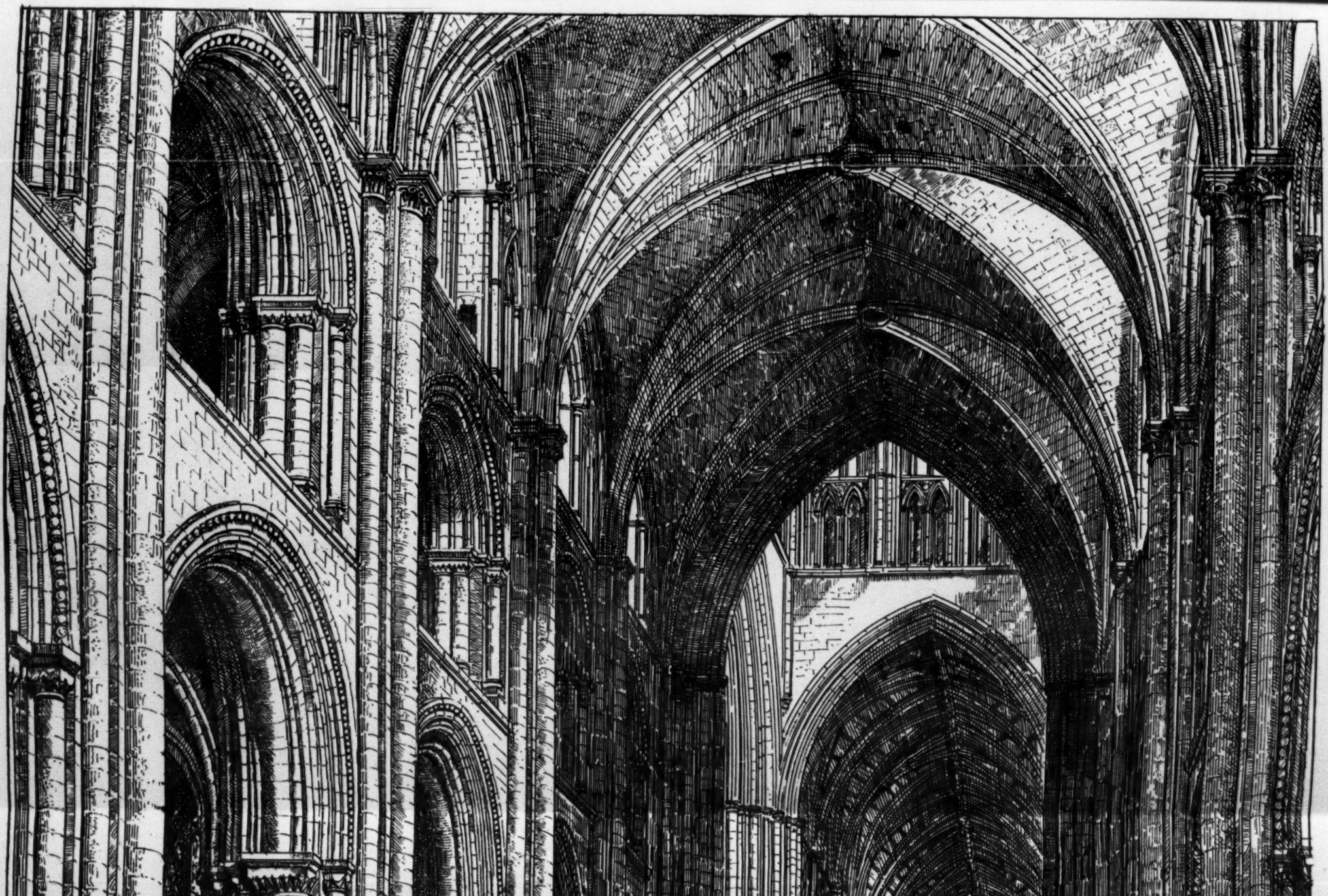
PROPOSED NEW CHURCH, BARMOUTH: COMPETITION DESIGN.

THIS church was designed to stand upon the mountain side, above the town, facing the sea. The site was a very fine one, but was rendered somewhat difficult to treat owing to the, in parts, almost precipitous nature of the rocks.

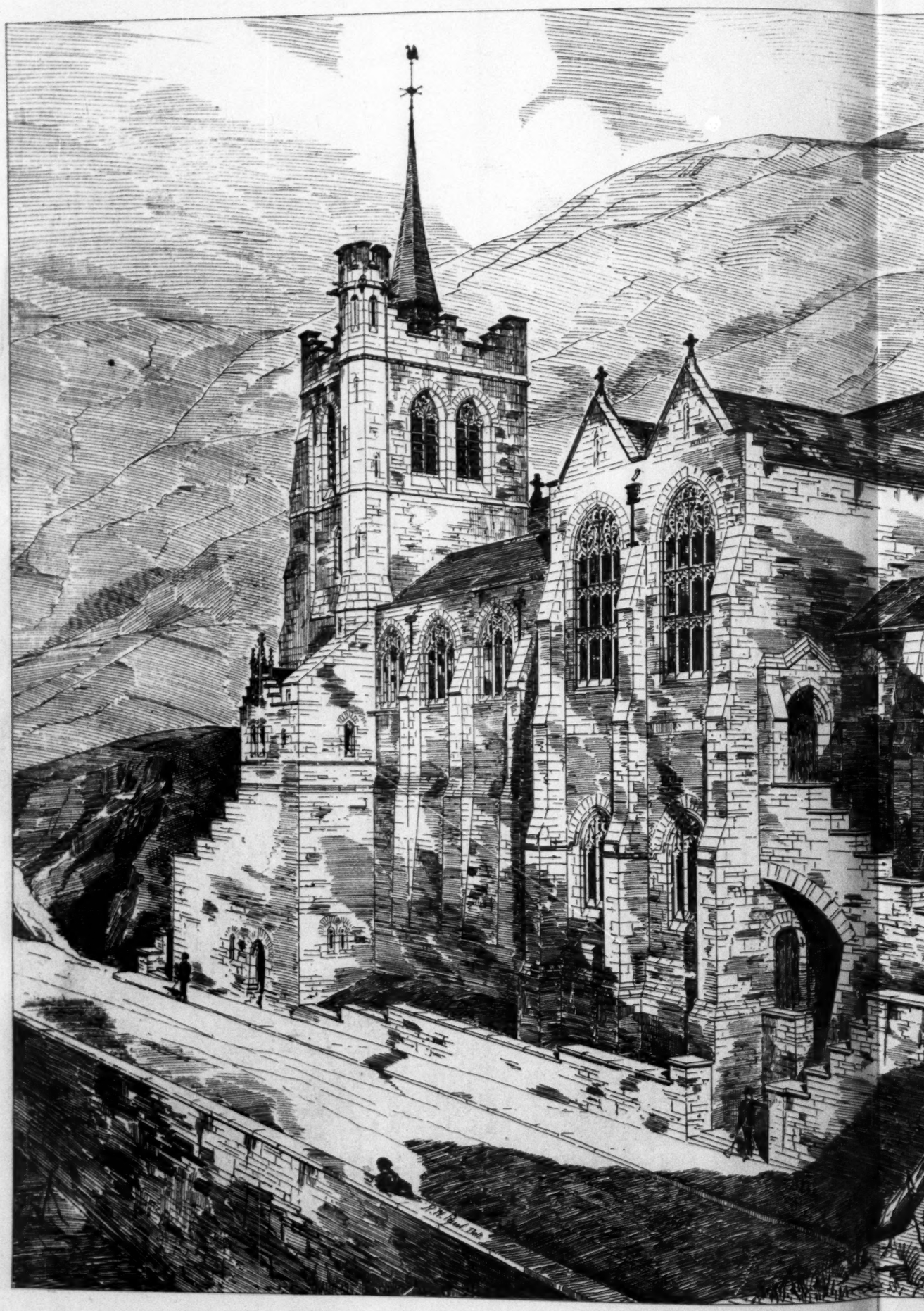
Breadth of plan was avoided, as it would have involved an amount of quarrying greater

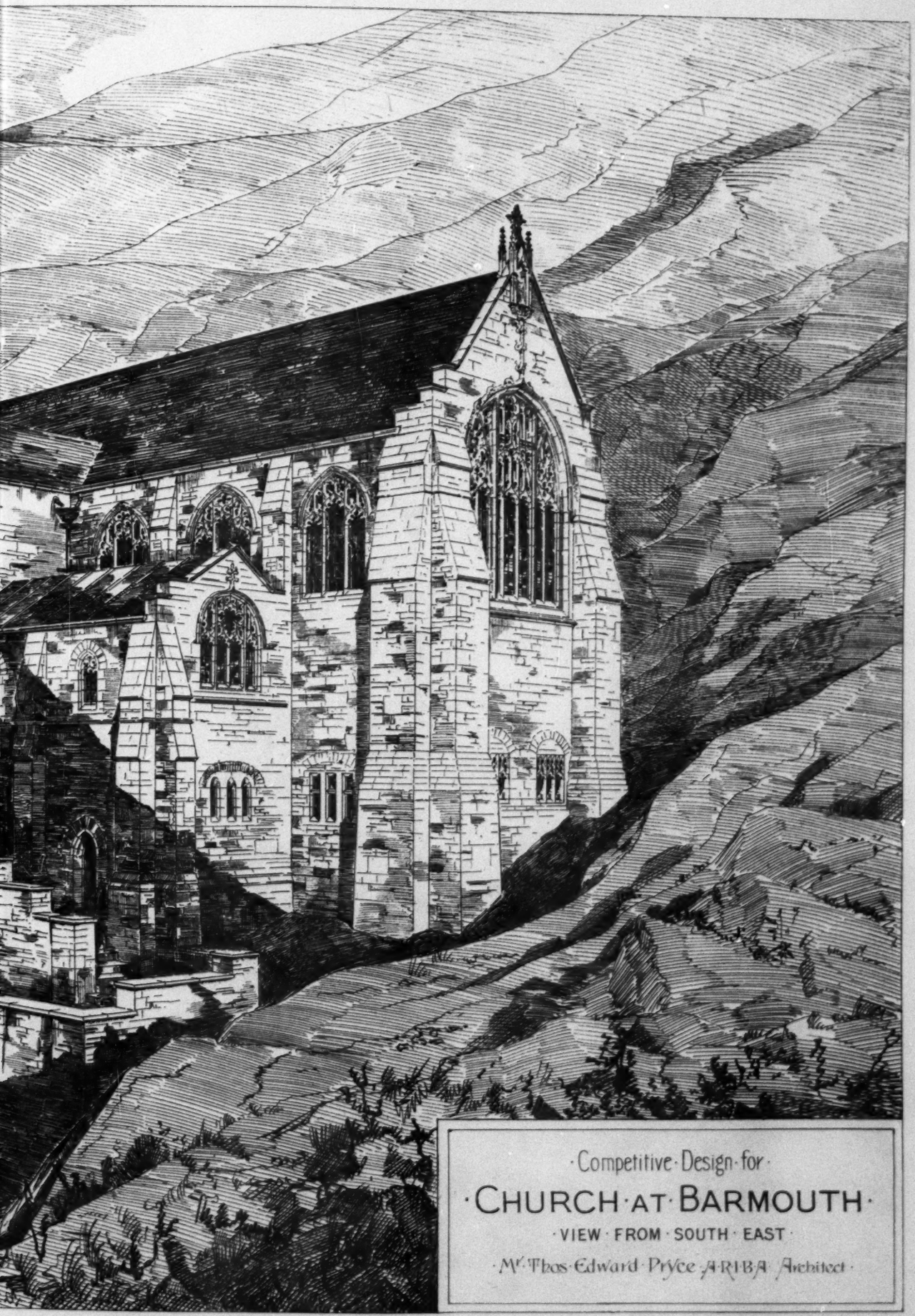
The Phototype Co., 331, Strand, London.

HOTEL COMMUNAL DE SCHAERBEEK, BRUSSELS.—M. Van Ysendyck, Architect.



"PAUL'S WALK." THE NAVE OF OLD ST. PAUL'S; A RESTORATION.





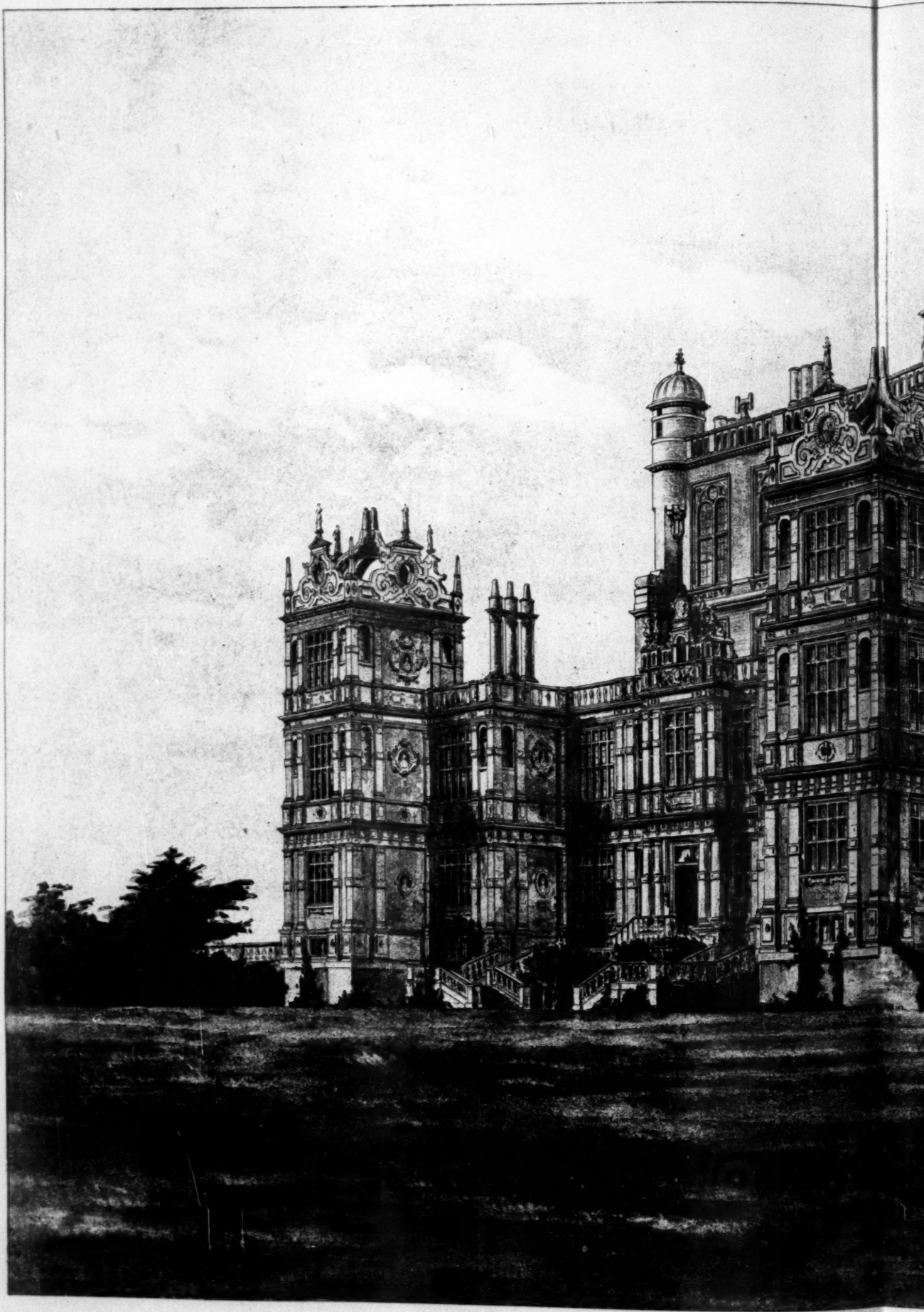
Competitive Design for

CHURCH AT BARMOUTH

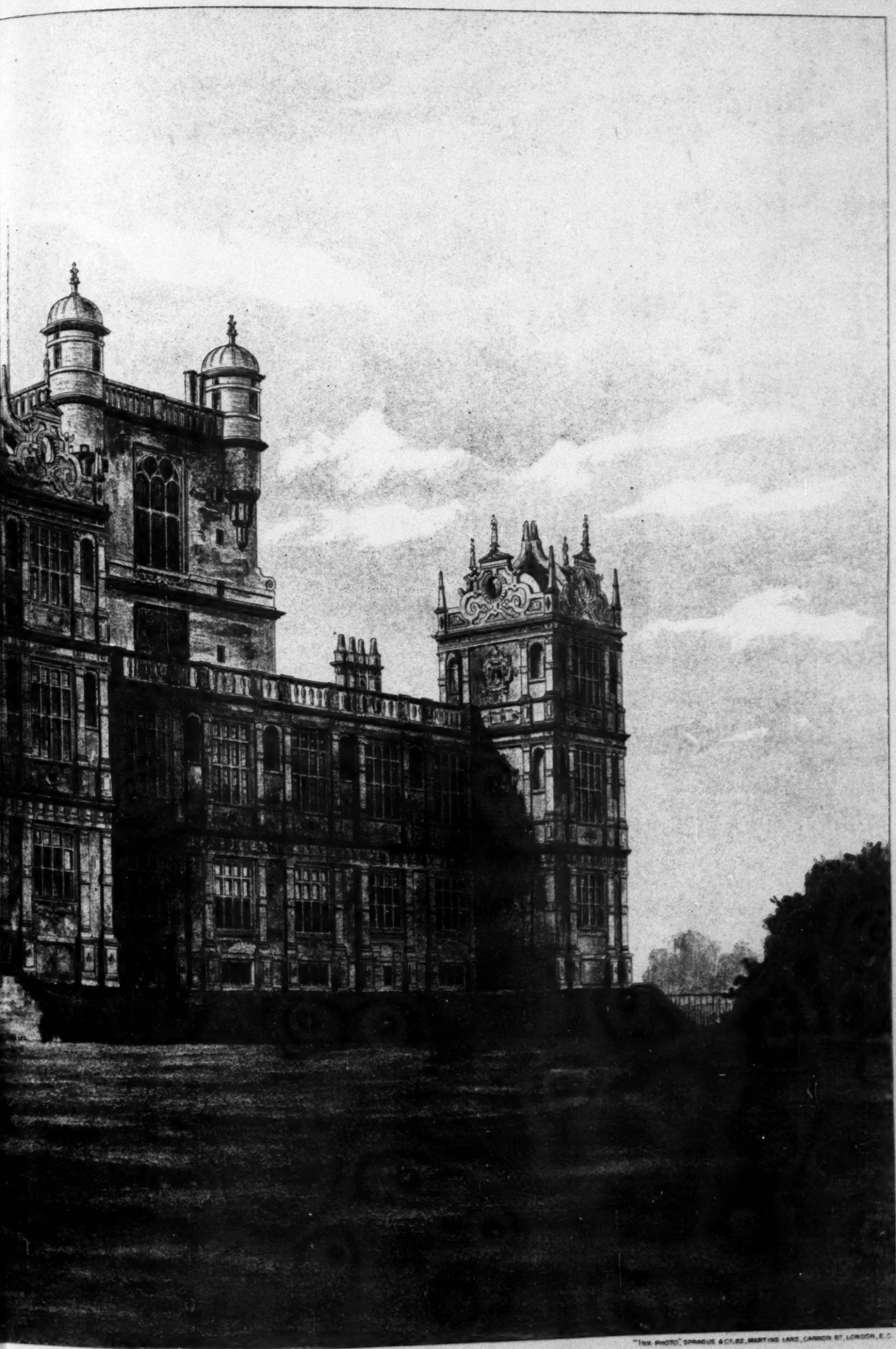
VIEW FROM SOUTH EAST

Mr. Thos. Edward Pryce A.R.I.B.A. Architect

PHOTO-LITHO. SPRAGUE & CO., 62, MARTIN'S LANE, CANNON ST., LONDON, E.C.



WOLLATON HALL.—From a Drawing by



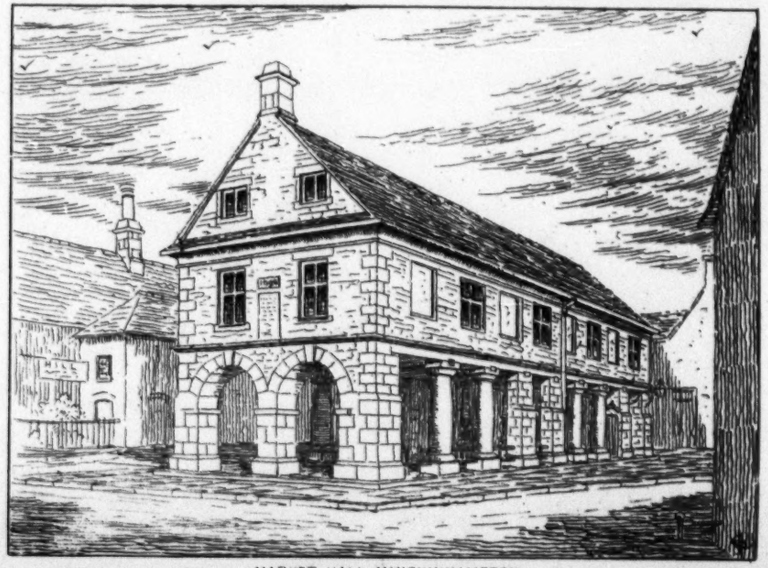
"THE PHOTO," SPRAGUE & CO. 62, MARTINS LANE, CANNON ST. LONDON, E.C.

WING BY MR. PERCY K. ALLEN.

BURLEIGH FARM.

IN MINCHINHAMPTON.

BEAR INN, RODBOROUGH.

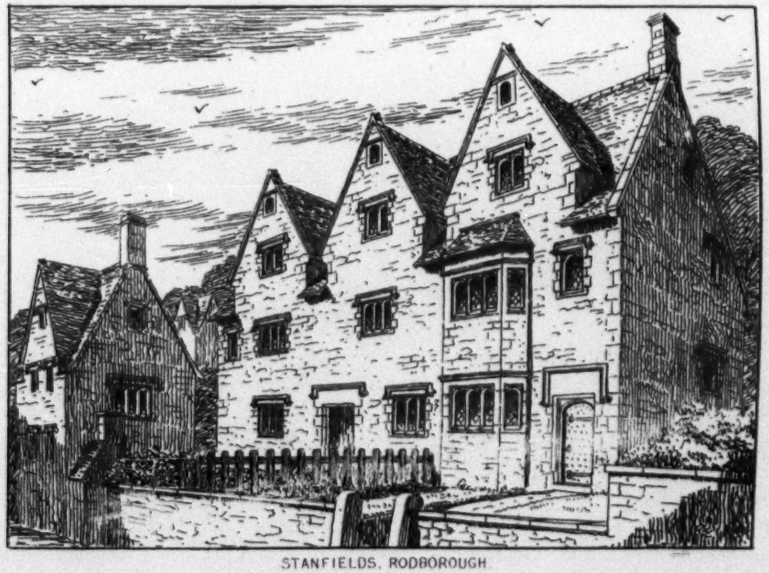


MARKET HALL, MINCHINHAMPTON.

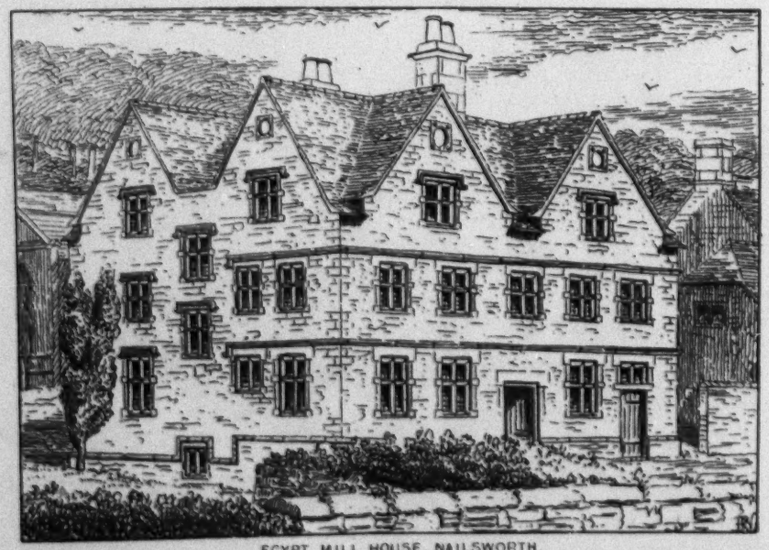
PHOTO-LITHO. SPRAGUE & Co., 22, MARTINS LANE, CANNON ST. LONDON, E.C.

SKETCHES ABOUT THE GOLDEN VALLEY, GLO'STERSHIRE.—By Mr. Ralph Nevill, F.S.A.

ROOKSMOOR.



STANFIELDS, RODBOROUGH.



EGYPT MILL HOUSE, NAILSWORTH.

SOUTHFIELD, WOODCHESTER.

PHOTO-LITHO. STRAGUE & CO., 52, MARTINS LANE, CANNON ST., LONDON, E.C.

SKETCHES ABOUT THE GOLDEN VALLEY, GLO'STERSHIRE.—By Mr. Ralph Nevill, F.S.A.

Grotesques, Wollaton Hall.—Drawn by Mr. Percy K. Allen.

than was necessary to supply the stone for the walling.

The plan shows, in accordance with the committee's requirements, seats for 967 people, a choir of thirty-six, and ten stalls. Choir and clergy vestries are placed in the space formed by the fall of the site, beneath a part of the chancel and the chapel, and a parish room beneath the transept.

The materials available are the grey-green stone of the site, the slaty rock of the neighbourhood, and freestone dressings.

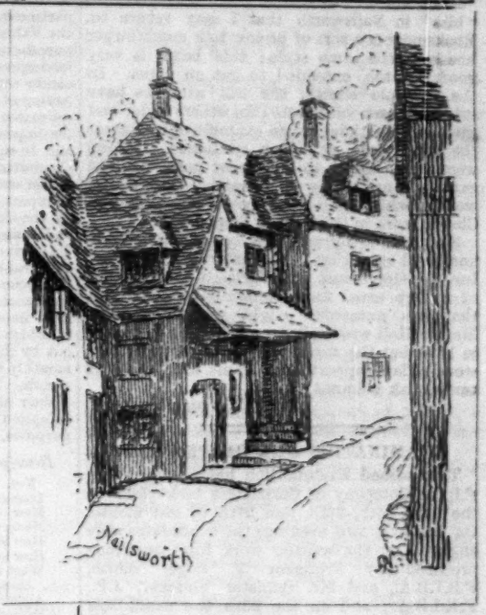
THOS. EDWARD PRYCE.

WOLLATON HALL.

WE have in a previous number published Mr. Percy K. Allen's complete set of measured drawings of this celebrated mansion (see *Builder* of April 13, 1889). To these we have now the pleasure of adding a reproduction of a perspective view of the hall by the same architect, and also two more illustrations of the clever and curious grotesque heads which abound in the building.

OLD COTTAGES, &c., ABOUT THE GOLDEN VALLEY, GLOUCESTERSHIRE.

LAST year I illustrated, in these pages, the cottages and other simple buildings of south-west Surrey. These were good and typical examples of buildings in timber and weather-tile. I now commence a series illustrating similar stone buildings. These are taken from the neighbourhood of Stroud, in Gloucestershire, from the Cotswold Hills and the Golden Valley. In this district, among others, Edward III. settled a number of Flemish weavers, and on inquiry, some years afterwards, it was found that Stroud had prospered beyond all other settlements. Ever since, this part has been an important manufacturing centre; and, as I



pointed out in speaking of Surrey, it is in such neighbourhoods, rather than in agricultural districts, that the humbler architecture is of value.

The mills of the district have never been concentrated in one town, but are scattered over a wide area along the streams in the romantic valleys. Surely this neighbourhood is the paradise of the mill-hand! Here, instead of the back court of a smoky town, he lives on the hill-tops in one of the most beautiful parts of England, in perhaps the finest air to be found in the island, close to, but out of sight of, his work-place, and generally with ample garden and allotment.

Out of consideration to those who already make this part a holiday-resort, I am loth to say too much in its favour, but in my experience there are few parts of inland England to equal it—whether in respect of such places as the magnificent plateau of Amberley Common, with its thousand acres of splendid turf; of wooded valleys such as Todgmoor, below Bussage; of delightful old towns running down the hills into the valleys, such as Nailsworth; or of such magnificent and extended views over the valley of the Severn as can be obtained from Rodborough from Hetty Pegler's tump, from the old limekilns above Stroud, or from Painswick Beacon.

The buildings surviving are nearly all of similar date to those of Surrey; that is, from the end of the fifteenth to that of the seventeenth century. The excellence of Painswick stone is well known, and a similar quality is to be obtained in various places, such as Chalford; rough stone for walling may be quarried anywhere on the hills.

Certainly one misses here the rich colour given by bricks and tiles, and some of the picturesqueness of form so easily achieved in timber-building, but in return one has a sobriety and propriety of design and good proportion, and a certain "monumental" appearance that has its compensations. Whereas, in the timber country, it is rather an exception to find an original window; here they exist nearly as perfect as the day they were put up. The walls being of rough stone are commonly covered with rough-cast, and this involves somewhat of monotony of colour, as there are no red roofs to contrast with it. This might be partly obviated were more attention paid to the cultivation of the many varieties of gorgeous creepers.

Of the roofing materials and peculiarities of form, and of other features, such as the labels and drip-stones, I shall speak in later papers, as well as of the so-called Flemish cottages.

Of the buildings shown this week, Egypt Millhouse is perhaps the most complete example of its sort in the neighbourhood; the view shows the outside angle of an L-shaped house. At the time this was built, the master-clothiers were rich and important people, whose fortunes have been the foundation of many noble houses. The sketch above is of a little bit in the street; the manner in which the point is formed to the gable should be noticed; I gave a similar example from Surrey. There are some other

"bits" in Nailsworth that I may return to. Rooksmoor is a sort of annex to a much larger house of the same style; this latter is very good, but too extended to get on paper. In the example shown, the tall windows have evidently been substituted for others older and smaller. Southfield is an example of a wing of the latest date, at which mullioned windows were used, added to an earlier part. On the gateposts are vases of beautiful design and workmanship, such as is commonly found in Classic work in this part of England.

Stanfields is a group of early and particularly unaltered work that I shall return to; the Bear Inn, the Greyhound, and Burleigh, are examples of a very usual form of double-gabled front, that has numerous slight variations. The Market Hall was built by a lord of the manor in 1698, but the market refused to come; the stone-pillars support oak beams, and there are turned oak columns inside.

RALPH NEVILL.

EXAMINATION FOR CARPENTERS.

THE second Examination held by the Worshipful Company of Carpenters took place on the 24th, 25th, 26th, and 27th of last month. On the first two evenings the candidates were engaged on the written work from questions prepared by Professor T. Roger Smith, F.R.I.B.A., and Mr. Banister Fletcher, J.P., F.R.I.B.A.; and on the 26th the candidates attended at the workshops belonging to the Company, at their Institute at Stratford, to be examined in practical work and setting-out. On the 27th the Board of Examiners met at Carpenters' Hall, amongst whom were Mr. Arthur Cates, Vice-President of the Royal Institute of British Architects; the President of the Institution of Civil Engineers (Sir G. B. Bruce); the President (Mr. L. A. Stokes) and ex-President (Mr. H. D. Appleton) of the Architectural Association; the President (Mr. F. May) of the Institute of Builders; the President (Mr. L. Dillon) of the Clerks of Works' Association; and Sir Philip Magnus, representing the City and Guilds' Technical Institute.

After going through the written work, and receiving the report drawn up by Mr. Dashwood, the Secretary of the Clerks of Works' Association, who acted as Moderator at Stratford, the candidates were orally examined on the work they had done, and as to their general knowledge.

The work done both at the Hall and at Stratford was of a very high character, and the judges showed their approval by awarding gold, silver, and bronze medals. It is a sign of the value that the candidates attach to the certificate that all the candidates who last year only obtained a second-class certificate again competed this year. The following are the successful candidates:—

First-class Certificates:—C. W. D. Boxall (Gold Medal), H. Kent (Silver Medal), A. Whillier (Bronze Medal), S. Evans, A. D. Johnson, J. D. McNaire, G. W. Chilvers, A. G. Morrice, and C. T. Aston.

Second-class Certificates:—W. Benn, J. Hunt.

THE LONDON COUNTY COUNCIL.

THE ordinary weekly meeting of the London County Council was held on Tuesday last in the Council Chamber, Guildhall.

The Architect's Department: Proposed Appointment of a Valuer.—The Standing Committee reported that they were proceeding with their investigation into the staffs of the various departments, and that they had now to make a report as the result of certain preliminary suggestions made by the Sub-Committee which has been inquiring into the Architect's department. It was necessary that these suggestions, which relate to the appointment and duties of a valuer, should be considered and dealt with before the Sub-Committee could usefully proceed further with their investigation, because the arrangement of the department in other respects would depend partly on what the Council might determine with respect to the Valuer. It was mentioned that since July last there had been no valuer on the staff, and the work of valuation had been undertaken by the Architect and his assistants. The Committee were of opinion that whilst the omission to fill the vacancies in those offices effected a saving of money, it adversely affected the efficiency of the Architect's department. They thought it desirable, therefore, that the vacancy in the office of Valuer should be filled up as soon as may be, and that the Valuer's office (hitherto included in the Improvements, Compensation, and Estates Branch of the Architect's Department) should be reconstituted as a separate department. The head of this department should be the Valuer, whose duties should be (1) To survey for purposes of valuation land or buildings to be purchased for improvements, and advise as to value. (2) To confer with the Architect as to the reserve price for letting of surplus lands by auction. (3) To prepare estimates as to value of land or property to be taken for improvements to be presented to Parliament, and to support the same before the Parliamentary Committee. (4) To advise as to claims for compensation sent in by owners of property or others, and to report upon the same in the manner prescribed by the Council. (5) To confer with the Architect, and advise as to the plotting of surplus lands. (6) To advise as to local improvements carried out by the local authorities, and towards the cost of which the Council will contribute. (7) To advise when a local authority desires to raise a loan to carry out a local improvement. (8) To examine into the mode in which the Valuation (Metropolis) Act is carried out by the Assessment Committees. (9) To report monthly to the Council at the first meeting in each month. The Committee were of opinion that the Valuer should, when he was required to make a valuation for purposes of compensation, or for other purposes, report in the following form:—

Description of Property Proposed to be Acquired.

Nos. and in street.
Character of tenure.
How occupied (Business, if any).
Name of owner.
How long he has been owner.
How he acquired it.
What he paid for it (or price paid for it last time it changed hands).
Amount at which it is rated.
Estimated value (based upon years purchase).

Remarks.

Under this head the Valuer should state (when possible):—

(1) The value of adjoining property and how rated.
(2) Any special feature which may have influenced his valuation.
(3) If the owner has ever before received compensation for property taken for public services, and if so, under what circumstances.

The Committee believed that by the adoption of this system the following results would be obtained—(1) The grounds upon which the valuations are made would, in all cases, be so plainly and fully set forth that the Committee or official to whom they were submitted could easily check them and, if necessary, question the Valuer in respect to them. (2) The speculation in lands likely to be required for public purposes might be more easily traced and prevented. (3) The practice of under-rating properties for local taxation purposes would be discouraged. To enable the Council to better protect itself against those property-owners who undervalued their property when the question was one of rating, and over-valued it when the question was one of compensation from public authorities, the Committee ventured to suggest that declarations in connexion with the quinquennial valuations should be revised, amplified, and made open to the Council. The Committee, before agreeing to the foregoing suggestions, made it their duty to consult the various Committees concerned with the valuation of property upon the merits of the suggestions. Those Committees were:—The Improvements Committee, the Bridge Committee, the Local Government and Taxation Committee, and the Corporate Property, Charities, &c., Committee. All were agreed on the expediency of the Council appointing a Valuer as an officer independent of any other department. The Corporate Property, &c., Committee, in a report presented to the Council on May 14, suggested that the Valuer should also act as auctioneer for the Council. The Committee, however, had grave doubts as to the expediency of requiring the Valuer to act as auctioneer, and they were not prepared to recommend that course to the Council. Upon the question of the salary to be assigned to the Valuer, the Committee, after careful consideration, were of opinion that 1,000*l.* a year would be a proper amount. They accordingly recommended:—

"That the Council do appoint a Valuer, who shall be independent of any other department, and whose salary shall be 1,000*l.* a year; that his duties be those above set forth, with any others that may hereafter be prescribed by the Council; that he do hold his office during the pleasure of the Council; that he be required to give his whole time to the duties of his office, and be not allowed to take any private practice; and that the appointment be in other respects subject to the conditions already laid down by the Council with regard to all appointments made in its service.

That advertisements be issued inviting applications for the appointment, and that the applications, when received, do stand referred to the Standing Committee, with instructions to select (after conference, if necessary, with other Committees concerned) and report to the Council, the person or persons whom it considers the most suitable for the appointment."

This recommendation led to a long discussion, in the course of which the expediency of combining the offices of Valuer and Auctioneer was freely discussed. Councillor Johnson was opposed to the appointment of a permanent official as Valuer, and said he thought that the Council would be best served by going to professional men outside. Councillor Westacott was of the same opinion, and, moreover, said he did not think the salary proposed to be offered was at all adequate to the duties of so responsible an office, which called for the highest professional ability combined with the most undoubted integrity. The discussion was continued by Councillors Marks, Clarke, Charles Harrison, Wren, Torr, Thornton, Edis, Beachcroft, Beal, and Eccleston Gibb, and by the Vice-Chairman (Sir John Lubbock) and Alderman Sir Thomas Farrer. Councillor Edis, as one with some knowledge of the subject, urged the Council to pause before passing the recommendation of the Committee. He was prepared to say that probably nine-tenths of the valuers were specialists; and it was, he thought, almost certain that no man whom the Council was likely to get for a salary of 1,000*l.* a year would understand and be master of the whole of the special classes of property with which the Valuer to the Council would have to deal. It would really be far cheaper, because much more reliable, to call in the services of outside valuers from time to time. The recommendation was ultimately referred back to the Committee for reconsideration.

The Blackwall Tunnels Scheme.—The Bridges Committee reported that, in accordance with the resolution of the Council of April 16 last, the Committee nominated Mr. J. Wolfe Barry as the engineer to advise the Council upon the scheme for the construction of the proposed tunnels under the Thames at Blackwall. The fee to be paid to Mr. Barry for the reference to be 500 guineas. This was agreed to.

The Housing of the Working Classes.—Alderman Lord Hobhouse, the Chairman of the Corporate Property, Charities, and Endowments Committee presented the following report:—

"Your Committee have to report that the land comprising the Hughes's-fields (Deptford) area, which is six or seven acres in extent, was acquired by the Metropolitan Board of Works under the Artisans' Dwellings Acts and under a Provisional Order confirmed in July, 1885. It was cleared of houses in January, 1888. Delay has occurred in the further operations owing to the circumstance that the first plans were made for two-story houses, which then were found to leave an insufficient amount of space and ventilation. The number of persons to be housed is 1,786.

(*b*) Sub-Committees of this Committee and of the Housing of the Working Classes Committee have repeatedly met to consider the best arrangements, and they are unanimous in their recommendations, which we proceed to state, though they are difficult to understand without looking at a plan which has been prepared by the Architect, and which will be present in Council for reference, if desired.

(*c*) The proposed arrangements are—First, to build some of the houses to three stories in height, the maximum allowed by the order. Secondly, to form a passage 17 ft. wide from Benbow-street (a street dividing two of the rows of houses) to a piece of ground coloured green on the plan, and about fifty-eight perches in extent. Thirdly, to keep the green plot as a recreation-ground for children, and to connect it by an opening with a contiguous recreation-ground formed from a disused burial-ground. Fourthly, to retain in hand the plot marked B on the plan (about 104 perches) to await the contingency of improvements in the immediate vicinity. Fifthly, to sell the three other plots coloured blue on the plan, measuring respectively about 69, 7, and 2½ perches.

It is also proposed that the Council shall itself build the required houses. The Council can do this with the consent of the Home Secretary. The Architect has roughly estimated that the cost will not at the utmost exceed 40,000*l.* If the Council determine to build, the law requires that the property shall be sold within ten years after completion. Your Committee recommend to the Council:—

'1. That the arrangements stated in paragraph (*c*) of the report be adopted.

2. That the Council apply to the Home Secretary for his sanction to build the proposed houses.'"

This report was also discussed at very considerable length, Councillor Rotton warmly opposing the suggestion that the Council should itself become the builders and owners of artisans' dwellings. On the other hand, Councillor Æneas Smith strongly supported the recommendation of the Committee, urging that power to build such dwellings was conferred upon the late Metropolitan Board of Works, though it remained unexercised. It was, he contended, at least desirable that the Council should make an experiment in the direction indicated. Councillor A. Hoare deprecated the proposal that the Council should itself build artisans' dwellings, as did Councillor Longstaff, while Councillors Collard, Phillips, and Lidgett supported it. After some further speeches by Councillors Lewes (who advised caution in the matter, remarking that Deptford was not, he thought, a suitable locality for such an experiment), Thornton (who said that the people did not want "barrack buildings"), Osborne, Charles Harrison (who pointed out that by the Holborn Valley Improvement Act the Corporation of London was invested with power to do, and had done, just what the report recommended the Council to do), Burns, Lowles, and others, the Vice-Chairman (Sir John Lubbock) after an amend-

ment to refer the matter back had been negatived, moved the following further amendment, viz.:—

"That before spending the money of the ratepayers in building at Hughes's-fields, the Committee on the Housing of the Working Classes be instructed to inquire whether, and if so on what terms, the existing societies constituted for the purpose of supplying buildings for the working classes would be willing to rent the land for that purpose."

Sir John Lubbock argued that it would be a mistake for the Council to attempt to compete with private enterprise in the matter, as the various companies and associations who had already done so much would be discouraged. Alderman Sir Thomas Farrer seconded this amendment, though stating that he thought he was undergoing the process of conversion to the view that the Council ought to build. This amendment was lost on a division by thirty-eight votes against it to twenty-one votes for it, and after some further discussion the Committee's recommendation was agreed to by a large majority.

The Council shortly afterwards adjourned, after sitting nearly five hours.

THE BROMLEY SCHOOL-BOARD COMPETITION.

IN regard to this competition, our readers will remember that a fortnight ago* we published the letter from the Royal Institute of British Architects to the School-board, recommending that, under the circumstances, a new competition should be initiated.

At the meeting of the Board, on the 24th ult.,

The Chairman (Mr. T. Davis) read a letter from Mr. Waterhouse, the President of the Royal Institute of British Architects, regretting his inability to serve as assessor in the competition for the Valley Schools, and, in accordance with the Board's request, nominating Mr. James Brooks, of the Strand, to fill that position.

Mr. Robson wrote, thanking the Board for their letter of the 14th ult., and for the copy of the report of the Institute of Architects.

The Chairman said various other letters had been received, and one of them, signed by four of the architects who sent in plans for the competition, asked the Board to reconsider their desire with regard to having a fresh competition for the Valley Schools. It was unfair, the letter stated, to expect the architects to send in practically fresh plans. This letter was signed by Messrs. W. A. Williams, F. Rogers, A. W. Hemmings, and Bushell.

Messrs. Vacher and Hellicar, who also competed, wrote, requesting the Board to submit the designs of the Manor and Valley Schools to a competent architect, who was to be approved by the competitors, and to award a premium which was to be merged into the commission if the successful plans were used.

Another letter was received from Mr. C. E. Soames, who also competed, in the course of which the writer remarked that the public generally appeared to think that it cost the architects nothing to prepare plans, but he need hardly inform the Board that such was not the case. He asked that the architects who sent in plans might be remunerated.

Mr. Weeks thought that the motion in favour of a fresh competition was rushed through at the last meeting of the Board. He thought the Board ought to accept the instructions of the Institute of Architects as far as they went, but his opinion was that it was simply an easy way of letting down Mr. Robson. The competition was for one-story plans, and he thought such plans were more in accordance with the spirit of the Board. That matter was fully discussed when the instructions were given. He thought it was very hard for the architects to be called upon to prepare a fresh set of plans, and he did not see the desirability of it being done.

The Chairman said if Mr. Weeks did not move a resolution he could not allow a discussion.

Mr. Gedney said after the correspondence they had just heard read he would give notice at the next meeting of the Board to rescind the resolution passed in favour of a fresh competition, and move that the plans reported upon by Mr. Robson be remottoed and referred to the Architect of the London School Board for his award. Mr. Gedney added that he had inserted the Architect to the London School Board in his notice to rescind the resolution before Mr. Brooks's name was mentioned, but he had no objection to the plans being referred to Mr. Brooks if the Board desired it to be done.

Mr. Weeks said he should be very happy to second Mr. Gedney's motion.

After some further discussion,

It was resolved that Mr. Gedney's motion should stand on the agenda for the next meeting of the Board.—(Abridged from the *Beckenham and Penge Advertiser.*)

Engineership, London County Council.—The *Times* of Thursday says it is stated that the Committee of the London County Council have resolved to recommend to the Council the appointment of Mr. J. Gordon, Surveyor to the Leicester Corporation, to the office of Engineer to the County Council of London, at a salary of 1,500*l.* per annum.

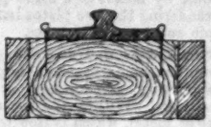
* *Builder*, June 22, p. 472.

THE VIGNOLES RAIL.

SIR,—In reading the interesting notice of the "Life of Vignoles," in your last number, I am struck by the glaring inaccuracy of that portion which relates to the "Vignoles rail." The writer says, "Of course with the longitudinal sleepers went the Vignoles rail, which was really a clever thing, but it was only suited for longitudinal sleepers," &c. Now, in point of fact, the Vignoles rail is laid on cross sleepers throughout in the Tudela and Bilbao Railway in Spain, and also on the Warsaw and Terespol Railway, which lines were designed and carried out by the late C. B. Vignoles. It is essentially an elastic rail under the cross-sleeper system, its section forming a true girder, and allowing a greater distance between the sleeper than would be admissible in a rail of less scientific construction.

F. S. A.

*** The rail in question is a thing of the past, we believe, in England, and the information in the "Life" seems to be exceedingly inaccurate. The author, on the first reference to the Vignoles rail, says, "A sketch of it from his own hand will be found in the next chapter"; and this is the sketch.



Not a single word is said as to Vignoles having ever thought of using it on cross sleepers; on the contrary a special point is made of his preference for longitudinal sleepers.

We find also that the author is incorrect, as we supposed, in stating that the longitudinal sleepers on the Great Western Railway have been all taken up. All the new portions are laid with transverse sleepers, and no doubt the change will be made throughout, but it is not so made yet.

A COMPETITION INCIDENT.

SIR,—In September of last year, Messrs. Cory Bros. & Co., of Cardiff, advertised for competition designs for their new offices in Bute-road, Cardiff. The conditions stated that the proposed building was not to cost more than 8,000*l.*, which sum was to "complete the building with all usual fittings," and further, "upon the various plans being cubed by a local professional man, any plan exceeding this amount would not be considered." This looked like a very good competition, and many went in for it. Observe the result,—it appears in your last issue,—a Cardiff firm obtained the commission, and the lowest tender for their design was 13,499*l.*! Amended tenders being obtained, the lowest was 10,249*l.*, but this was passed over, and the tender of a Cardiff firm of builders at 10,285*l.* accepted.

Now, does it not seem from this as if the result of the competition was settled from the first, and that it has been simple cruelty to a large number of architects and builders, inviting them to take part in it? The local professional gentleman must have been singularly wide in his estimate, or the promoters of the competition deliberately acted in violation of their own printed conditions.

Yet one other sample of the pleasures of competition,—or perhaps somebody can give a satisfactory explanation.

J.

*** If the facts are correctly stated, we call it a scandalous case.—ED.

PRICES OF WOOD.

SIR,—Noticing the "Prices Current of Materials," published in your journal weekly, they are extraordinary to my mind. Could you kindly explain, for instance, where Italian walnut at 4½d. to 6½d., Cuba mahogany 4½d. to 6½d., also the other timbers at prices quoted in last week's issue, are to be procured? Of course, not quoting "Fresh goods," "Undersized," or "Inferior," I take it you mean ordinary stock prices?

Would you please publish this letter in the interest of the timber merchants as well as the builders?

W. G. WEST.

56, Jenner-road, N.

*** The "Prices Current of Materials" are quoted by us weekly (by arrangement) from the columns of the *Public Ledger*, a daily commercial journal of repute and standing published in the City. We have written to the Editor of the *Public Ledger* on the subject, and he very courteously replies to the effect that, as our correspondent will have observed, "the prices for wood in 'Prices Current' are very often the 'cargo average,' and always the price *ex* ship, which would include all sorts and all sizes; but, of course, when you see any account of wood sales in our commercial report, those are the prices actually paid by the trade at public auction."—ED.

East London Waterworks.—An account of these works, visited by the Society of Engineers on the 27th ult., is in type, but is crowded out until next week.

The Student's Column.

WATER-SUPPLY.—I.

INTRODUCTORY REMARKS.

A COMPLETE knowledge of all the aspects of water-supply demands a close acquaintance with certain sections of many distinct sciences, especially physical geography, meteorology, geology, biology, chemistry, and engineering.

Physical geography is utilised in considering the contour of the ground, the position, depths, and drainage areas of rivers and lakes, and the sites of forests, moss-beds, peat, and other vegetable accumulations. Under this heading the position of farms, and the extent of arable and pasture land, might also for our purposes be included.

We require meteorology primarily to arrive at the distribution and amount of rain and moisture falling or forming on the earth's surface, to understand which it is necessary to know something about the laws governing the formation of rain, snow, hail, and dew. The distribution and degree of temperature in time and space in regard to evaporation and freezing of large water surfaces, and, in fact, all phases of the science relating to the augmentation or removal of moisture or water by atmospheric agency, may be made use of in some way or other.

Certain departments of geology are of the greatest assistance to us in water-supply problems. Our purposes demand a complete knowledge of stratigraphy, or the geographical distribution of the sedimentary rocks, their thickness, depths from the surface of the ground, general and chemical constitution, degrees of porosity, relations to surface and underground drainage areas, together with their inclination to the horizon, curvature, contortion, and dislocation. Also the distribution, disposition, general lithological character, and porosity of igneous and metamorphic rocks. The sites, output, and nature of strata met with in all wells, fluctations of water-levels, position and origin of springs, and the causes of augmentation or diminution in the volume of rivers and lakes, must claim our attention, as well as the suitability of strata for specific purposes, such as the foundations and sides of large reservoirs and embankments.

We may utilise biology only so far as it deals with the determination of the organised matter in water, with a view to finding whether that matter is prejudicial to health, or otherwise; and the botanical section of the science is useful in showing the functions of certain plants in purifying water.

Chemistry assists in determining the presence and the chemical constitution of mineral and organic matter in water, presenting us with chemical analyses from which, in many cases, we may gather its quality, degree of hardness, and suitability for various purposes, as well as the methods to be adopted in its purification.

Engineering science is called for in such a number of ways in dealing with water-supply questions, that there is scarcely any part of the science that is not laid under contribution in some form or other. It gauges the flow of rivers and artesian wells, surveys the ground of proposed schemes, and does all kinds of preliminary work of the same nature. It comprises more or less information in regard to all the sciences previously mentioned, which latter may be classed together as affording a means whereby we may arrive at the quantity (in part) and quality of water available, and its present disposition and occurrence; whilst the chief functions of engineering are to devise methods of capturing the supply, purifying it, and bringing it to the houses of consumers.

In addition, there are to be considered various legal and political points which complicate nearly every large water-supply scheme, such as compensation to mill-owners and others for the abstraction of river water, the pollution of wells from various artificial causes, the utilisation by towns of distant drainage-water from areas geographically belonging to towns nearer the seat of supply, making use of a distant supply which might be seriously affected in the event of military invasion or internal dissension, &c.

We do not propose, in the following articles, to give detailed information under all the headings mentioned; such a task would involve the preparation of many portentous volumes; at the same time an outline of all will be sketched, with details here and there, the

"natural science" portions receiving a great share of attention, especially in the consideration of water-supply from a geological point of view. Neither do we propose to strictly adhere to the manner of dealing with the subject in the order just laid down. It was thought useful to classify the matter in a scientific form, but inasmuch as each article must be as nearly as possible complete in itself, it is desirable after giving a few details of any subject, immediately to show their connexion with water-supply questions, instead of leaving this for some future article in the series, when that connexion might be less clearly understood.

PHYSICAL FEATURES.

Commencing with that portion of physical geography dealing with the contour of the ground, we may at once state that for any serious scheme of water-supply in which the fluid is derived from a large drainage area, the heights and contour of the ground must be accurately ascertained, either by reference to detailed contour maps, such as those issued by the Ordnance Survey, or by independent levelling. So far as England is concerned, it will be found that the higher ground is formed by hard rocks, chiefly in the western and central portions, and the low-lying or slightly undulating land by softer materials. One of the first things that strikes one, after having settled the contour, is that the majority of streams are situated in valleys the bottoms of which are slightly inclined, and that the uppermost extremities of the valleys end in a *cul de sac*. This phenomenon is, of course, far better defined in hilly regions than low-lying land, where it is not always easy to trace the commencement of slight hollows. The reason for this is clear enough. The rivers at present occupying the valleys, or their ancestors, have in nearly all cases carved out the valleys in which they run, by unceasing action throughout long periods. Valleys will be found in which no stream or rivulet at present exists, but which, nevertheless, have been worn away in ancient times in a similar manner. Some depressions, however, have been made by ice and other action.

In this way we see that each stream, with its minute tributaries, has its watershed, which is quite distinct, and divides it from any other stream. If the stream is merely a tributary of some larger river flowing into the sea or a lake, the same law holds good; the larger river and all its tributaries are confined to one large valley with several minor ones opening into it, along which the various tributaries come, and the whole are surrounded and enclosed by one continuous, uneven, irregular watershed open only at the outlet of the river. This enclosed area is known as a river-basin, and it will be seen that many minor basins are frequently formed by the junction of a series of tributaries with one another, before reaching the main river. These are very simple, elementary facts, and they must be clearly borne in mind.

These facts are utilised by the civil engineer in many ways, chiefly in choosing a suitable spot to derive a supply of water, making Nature assist him to her utmost in bringing it as near as possible to consumers. He takes advantage of the enclosed valleys by erecting dams across them, behind which the water accumulates as a reservoir, allowing any superfluous fluid to flow off by means of waste weirs or otherwise. He can approximately estimate the amount of water capable of being delivered by natural means from any river-basin, and should this amount prove insufficient for his purpose, he can frequently arrange to cut through the watershed, and tap an additional supply from an adjoining river valley or basin.

The positions and heights of different river-basins with reference to each other have, therefore, to be studied in making preliminary inquiries to get the necessary gradients, &c. Where a river-basin (or lake) lies at a considerable height, it often happens that a distant city at a much lower level can be supplied from this source, on the water being conducted over lower basins lying between the two points. It is evident that the physical contour of the ground plays a most important *rôle* in enabling such schemes to be successfully put into practice. The heights, slopes, and distances all along the line of route of the conduit must be accurately known, not only to enable the proper gradient to be observed for the flow of the water, but to ensure correctness in calculating the cubic contents of rock which may have to be excavated, the length of piping, brickwork, &c.,—important items in arriving at an estimate of the cost of any scheme.

The position and extent of moss-beds and peat should be carefully noted, as they assist in throwing some light on the nature of certain organic impurities in water, when the latter is known to be derived from drainage areas containing these vegetable accumulations. How, we shall see when considering the quality of water. In general, peaty water has a slight yellow tinge.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

8,412, Securing Doors and Windows. H. Riess (Berlin).

This patent relates to a contrivance for arresting hinged windows or doors, and securing them in position when opened to any suitable extent. A hinge-joint is detachably secured with its two extremities to the side frame of the door or window, and to the wing respectively. The contrivance is fixed in its joint by means of a screw-pin and nut, temporarily rendering the two plates immovable by the aid of a pin and bores or grooves.

10,180, Urinals, &c. J. H. da Fonseca.

By this invention, an arrangement is provided for supplying disinfecting, deodorising, or antiseptic fluid to urinals, &c. Within the basin or pan is placed a plate of metal, which is free to be turned. This plate is so placed that when the water is allowed to flow it will cause the plate to turn and thereby allow disinfecting, &c., fluid to flow into the basin. When the water ceases to flow the plate is turned by means of a weight or spring into its normal position, and is thus caused to shut the trap or valve and arrest the flow of disinfecting fluid.

17,796, Hanging Window Sashes. W. Roberts.

According to this invention, the upper and lower sashes balance each other, and are attached by means of a rope passing over a pulley at the head of the window.

3,057, Improvements in Window Fasteners. J. H. Evans.

This invention relates to a fastener acting with a tumbler and catch. The action is as follows:—When the sash is closed, the inclined side of the tumbler, coming in contact with the fixed lug on the window-frame, pushes the said tumbler back into its recess; but as soon as the tumbler has passed the lug it springs out and prevents the sash being opened. The catch may be applied to windows, doors, or shutters.

5,210, Contrivance for Scaffolds. F. Träbert.

According to this invention, a clamp or fastener is formed in iron, with rings, hooks, or sockets at either end. Its use is to connect the horizontal beams of a scaffolding or like structure to the vertical beams or poles which support them.

6,517, Fireproofing Buildings. G. Hayes.

This invention consists in covering the beams, or one face of the beams, with a sheet metal lathing formed with upturned flanges or bends curving over the flanges of the beam as a grip. The lathing is adapted to receive and hold plaster, and also as a casing for columns and girders, and may be fixed so as to leave an air-space between the lathing and that which it encloses. It is also particularly adapted to hold plaster for the formation of partitions and enclosures for light and elevator-shafts.

NEW APPLICATIONS FOR PATENTS.

June 17.—9,884, A. Hossack, Chimney-tops or Cowls and Ventilators.—9,913, W. Wheatley, Swinging Scaffold.—9,915, F. Wells, Combined Supply, Overflow, and Waste Fittings for Basins, Baths, &c.—9,973, J. Wilson, Rolling Partitions.

June 18.—10,000, S. Deards, Glazed Roofs and Skylights, and Metal Bars for Same.—10,013, J. Redden, Window Sash Fasteners.—10,032, G. Bellingham, Burglar Alarm Fastenings for Doors and Windows.—10,035, R. and E. Sankey, Wall-decoration and in Tiles, Panels, &c.—10,052, J. Cleminson, Sliding Doors.

June 20.—10,069, W. Bird, Fanlight Adjustment.—10,070, J. Atherton, Door Handles.—10,080, R. Kempe, Water-closets.—10,088, The Broseley Tileries Company and J. Crump, Earthenware Quarries or Tiles.

June 21.—10,120, S. Wormald, Rising and Falling Hinges for Doors, &c.—10,126, W. Bracewell, Joiners' and Cabinetmakers' Holding-down Cramps.—10,127, J. Norton and Others, Door Checks and Springs.—10,134, E. Shayler, Window-sash Fastener.—10,156, J. Semple, Drain or Sewer Pipes.

June 22.—10,212, W. Read, Painters' and Plumbers' Blow Lamp.

PROVISIONAL SPECIFICATIONS ACCEPTED.

6,949, J. Middlehurst, Flushing Apparatus for Water-closets.—6,966, J. Bone and W. Wilton, Fastener for Window Sashes and Casements.—8,339, R. Taylor, Window-sash Fastener.—8,444, W. Macdonald, Sash Fastener.—9,126, T. Bear and C. Whitefield, Mitreing Machines.—9,232, J. Anderson and W. Wilson, Whitewashing Brush, &c.—9,436, J. Fleming, Paint.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

10,343, J. Crossthwaite, Construction of Chimney-pieces, Mantelpieces, &c.—10,586, A. McLean, Blocks or Slabs for Paving.—11,027, R. Petrie, Draw and Push Bolts for Doors, Windows, &c.—12,018, H. Ramsay, Composite Watertight Pipe-joints.—12,330, W. Morgan, Walls or other Brick Structures.—4,174, F. Vine, Fastenings for Windows.—4,346, W. Popplewell, Saw Sets.—5,312, T. Tutin, Wind-guard Smoke-preventor.—7,164, J. Kimm, Chimney Pot or Top and Fixing same.

RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JUNE 18.—By WINCH & SONS (at Ashford).

Tenterden, Kent — The Pickhill Estate, 287a. 3r. 17p., f. £8,600

By HUMBERT, SON, & FLINT (at Watford).

Watford—Forty-seven plots of f. land 3,960

JUNE 20.—By WINCH & SONS (at Maidstone).

Goudhurst, Kent — "Etchinghill House," and 46a. 1r. 21p., f. 2,340

F. cottage and 9a. 3r., 9p. 490

"Etchinghole Farm" and 29a. 1r. 8p., f. 670

An enclosure of f. land, 5a. 1r. 2p. 185

F. orchard land, 5a. 0r. 15p. 245

JUNE 21.—By G. E. CLARKE.

Walthamstow—36, Beulah-rd., f., r. £32 p.a. 410

JUNE 22.—By D. SMITH, SON, & OAKLEY (at Shrewsbury).

Ludlow, near—The Crofton Estate, containing 1,286a. 3r. 34p., f. 32,000

By MESSRS. COBB (at Canterbury).

Canterbury—33 and 34, Wincheap-st., f., r. £15 p.a. 535

"Wincheap House" and grounds, f., r. £35 p.a. 925

A plot of f. land, 0a. 3r. 34p. 560

Wingham—An enclosure of f. land, 2a. 1r. 29p., r. £4 p.a. 120

Staple—Cottage and fruit land, 1a. 0r. 23p., f. 400

Cottage and plot of land, 0a. 1r. 6p., f. 100

Preston—"Parsonage Farm" and 4a. 0r. 19p., f., r. £35 p.a. 600

Westbere—Enclosures of f. marsh land, 29a. 2r. 11p., r. £32 p.a. 1,030

Isle of Thanet—"Thorne House" and farm, 367a. 0r. 31p., f., r. £831. 10s. p.a. 13,000

Enclosures of land, 18a. 1r. 34p., f., r. £48. 10s. p.a. 1,445

Enclosures of marsh land, 81a. 3r. 36p., f., r. £120 p.a. 3,725

JUNE 24.—By J. BAKER & SONS.

High Barnet—43, Wood-st., f., r. £20 p.a. 405

Enclosures of land containing 12a. 0r. 19p., f. 2,000

South Mimms—An enclosure of f. land, 3a. 0r. 16p. 200

Enclosures of f. land, 22a. 2r. 5p. 1,150

Elstree—F. land, 4a. 0r. 13p. 550

F. accommodation land, 12a. 3r. 33p. 650

By D. J. CHATTELL.

Orpington—1, Grasmere-villas, f., r. £50 p.a. 550

By S. CHETWOOD.

Waltham-cross—F. residence with stabling and grounds 810

F. house and 0a. 3r. 35p., r. £25 p.a. 690

"The Britannia" p.h., f., r. £40 p.a. 3,450

A plot of f. land, 2a. 0r. 33p. 600

Enclosures of f. land, 16a. 0r. 36p. 2,100

High-rd.—F. house and shop, with outbuildings, r. £70 p.a. 1,640

F. house and shop, r. £24 p.a. 400

Park-la.—F. house and two villa residences, r. £43. 8s. p.a. 1,090

Vauxhall—215 to 221 (odd), Upper Kennington-la., f., r. £151 p.a. 1,680

By WALKER & RUNTZ.

Lee—102, Lee High-rd., f., r. £52. 10s. p.a. 710

Bryanston-sq.—3 to 6, Moore-st., u.t. 12 yrs., no g.r., r. £50 p.a. 400

By H. HAINES & SON.

Clapham—53, 55, and 57, Old Town, f., r. £145 p.a. 2,030

Red Hill, Woodlands-rd. — "Claremont Villa," e.r. £55 p.a. 765

By GREEN & SON.

Ravenscourt-park—101, Dalling rd., f., r. £32 p.a. 400

By A. W. TAYLOR & CO.

Southfields, Putney—"Northumberland Villa," u.t. 61 yrs., g.r. £11, r. £45 p.a. 340

JUNE 25.—By BROAD & WILTSHIRE.

Lee—3, Woodstock-villas, u.t. 86 yrs., g.r. £15, e.r. £100 p.a. 600

By MOSS & JAMESON.

Bermondsey—The Spa Factory and 2, Clements-rd., f., £120 p.a. 1,800

F.g.r. of £60, with reversion in 55 yrs. to an e.r. of £300 p.a. 1,525

F.g.r. of £10, with reversion in 55 yrs. to an e.r. of £195 p.a. 260

14, Clements-rd., at 55 yrs., g.r. £2, r. £30 p.a. ... 235

By WHITTINGHAM & SONS.

Walthamstow—11, Cromwell-rd., f., r. £20 p.a. ... 400

By F. MILLARD.

Marylebone-rd.—No. 15, and 21, Alsop-mews, u.t. 32 yrs., g.r. £20, r. £125 p.a. 950

152, Marylebone-rd., and 20, Alsop-mews, u.t. 32 yrs., g.r. £36, r. £125 p.a. 750

Dorset-sq.—11, Balcombe-st., u.t. 20 yrs., no g.r., e.r. £75 p.a. 830

Islington—L.g.r. of £170, u.t. 19 yrs., at a g.r. of £14 p.a. 1,200

Kingsland—L.g.r. of £43. 6s., u.t. 17 yrs., at a g.r. of £38. 6s. p.a. 65

By A. RICHARDS.

Woodford Wells—Two c. houses in Whitehall-rd., r. £36. 4s. p.a. 330

An enclosure of f. land, 4a. 7r. 16p. 1,150

By GIDDY & TURNER.

Wallington—3, Alcester-rd, u.t. 78 yrs., g.r. £8. 10s., r. £42 p.a. 390

Blackheath, Bennett-park—"Frome House," u.t. 63 yrs, g.r. £10, r. £45 p.a. 390

By BEAN, BURNETT, & CO.

Sheerlands, Kent—A plot of f. land 470

By DEBENHAM, TEWSON, & CO.

Hind Head, Hants—"The Chalet," and 1a. 2r. 21p. f. 1,720

By FULLER, MOON, & FULLER.
Croydon—1 to 6, Station-ter., f., r. £340 p.a..... £11,800
"The Crown" p.h., f., r. £150 p.a. 10,000
20, Church-st., f., r. £38 p.a. 1,440

JUNE 26.—By HOWELL, SON, & BONNIN.
Notting-hill—33, Wheatstone-rd., u.t. 86 yrs., g.r. £7. 10s., e.r. £30 p.a. 150

By NORMAN, SON, & BOWEN.
Lincoln's-inn-fields—"The Coach and Horses," p.h., f., r. £60 p.a. 1,325

By COLLETT & COLLETT.
Westbourne-park—119, Tavistock-cres., u.t. 75 yrs., g.r. £8, r. £40 p.a. 335

By L. FARMER.
Kilburn—41, Princes-rd., u.t. 73 yrs., g.r. £20, e.r. £45 p.a. 80

By FAREBROTHER, ELLIS, & Co.
Stroud, Gloucestershire—The Rodborough Manor f. estate of 153a. 14,000
Greenford—"Greenford Cottage," and 3a. 0r. 8p., f. 2,250
A plot of f. meadow land 220
Brixton-rd.—No. 365, u.t. 62 yrs., g.r. £15..... 1,120
Fulham-rd.—111, Arthur-st., f., r. £45 p.a..... 675

By D. SMITH, SON, & OAKLEY.
Hatton-garden—11, Cross-st., and "The Three Tuns" p.h., f., r. £198 p.a. 3,540
Spitalfields—18, 20, and 22, Hanbury-st., and 8 and 9, Wood-st., f., r. £175 p.a. 3,500
Chingford—Copyhold farm. 11a. 0r. 7p., r. £30 p.a. 1,155

By F. JOLLY.
Holloway—79, Tufnell-park-rd, u.t. 75 yrs., g.r. £9, e.r. £55 p.a. 470
Dalston—32, Greenwood-rd., u.t. 63 yrs., g.r. £7, e.r. £48 p.a. 450
Stratford—15, 17, and 19, Livingstone-rd., u.t. 78 yrs., g.r. £9. 9s., r. £64 p.a. 330
Plaistow—12, London-ter., u.t. 92 yrs., g.r. £4, r. £28 p.a. 200
74, Upper-rd., u.t. 92 yrs., g.r. £4, r. £22 p.a. ... 175

By INMAN, SHARP, & HARRINGTON.
Spitalfields, Corbett-court—F. stabling, r. £45 p.a. 650

By RUTLEY, SON, & VINE.
Hoxton—227, New North-rd., and 1A, Arlington-st., u.t. 38 yrs., g.r. £6. 6s., r. £70 p.a. 685
19, Arlington-st., u.t. 38 yrs. g.r. £4. 4s., r. £36 p.a. 365
15, Baring-st., u.t. 43 yrs., g.r. £4. 5s., r. £30 p.a. 285
Croydon, Queen's-rd.—"The Four in Hand" beer-house, f., r. £50 p.a. 800
Gray's-inn-rd.—1 and 2, Phœnix-pl., u.t. 22 yrs., g.r. £10, r. £52 p.a. 335
Brunswick-sq.—11, Grenville-st., and 2 and 4, The Colonnade, u.t. 6 yrs., g.r. £33. 12s., r. £85 p.a. 90
Hampstead-rd.—2, 3, and 4, Little George-st., u.t. 21 yrs., g.r. £12. 12s. 350
Haverstock-hill—No. 25, u.t. 48 yrs., no g.r., e.r. £40 p.a. 370

JUNE 27.—By NEWSON & HARDING.
Crouch-hill—The f. residence, "Angleside" 1,000
Dulwich—16, Belvoir-rd., f., r. £22 p.a. 260
Holloway—12, Windermere-rd., f. 365
Tottenham-court-rd—No. 11B, f., e.r. £300 p.a..... 3,260
Islington—5 and 7, Church-st., f., r. £78 p.a..... 1,085
1 to 12, Bath-pl., f., r. £250 p.a. 1,700
Upper-st.—A plot of f. land 405
Addiscombe—63 to 69, Clyde-rd., u.t. 75 yrs., g.r. £50, r. £216 p.a. 800
Green-lanes—40A, Springdale-rd., u.t. 82 yrs., g.r. £5. 5s., r. £32 p.a. 275

By SQUIRE & NEWTON.
Sydenham—1 and 2, Hilton-villas, f., r. £80 p.a..... 805
4, 5, and 6, Oaksford-avenue, u.t. 64 yrs., g.r. £10. 16s., r. £85. 16s. 320

By E. STIMSON.
Old Kent-rd.—F.g.r. of £41 with reversion to £170 p.a. in 9 years 1,925
F.g.r. of £32. 8s., with reversion to £170 in 10 yrs. 1,620
Kennington—An i.g.r. of £111. 14s., u.t. 6 yrs., g.r. £46. 12s. 6d. p.a. 220
Wandsworth—F.g.r. of £24, with reversion in 8 yrs. to r. of £167 p.a. 1,200
Rotherhithe—F.g.r. of £12, with reversion in 5 yrs. to e.r. of £54 p.a. 550
New Kent-rd.—116, Falmouth-rd., u.t. 4 yrs., g.r. £5, r. £50 p.a. 65
Batterses—86, Ingrave-rd., f., r. £45 p.a. 590
Catford—14, Canterbury-rd., f., r. £35 p.a. 350
Old Kent-rd—286, 288, and 290, St. James's-rd., f., r. £95 p.a. 1,000
Nos. 298 to 304, (even), St. James's-rd., f., r. £121 p.a. 1,265

By Mr. JAMESON.
Putney—22 and 23, Stratford-gr., u.t. 60 yrs., g.r. £6, r. £56 p.a. 620

By BAXTER, PAYNE, & LEPPER.
Kent, Bromley—The f. residence "Tintern" 2,100
Knockholt—"Mariners' Lodge," and 7 a. f. 1,800

By C. C. & T. MOORE.
Wapping—2 and 13, Red Lion-st., f., r. £140 p.a. 776

JUNE 28.—By E. OWERS.
Willesden—2 and 3, "The Chestnuts," u.t. 95 yrs., g.r. £12, r. £58 p.a. 590
4 and 5, "The Chestnuts," u.t. 95 yrs., g.r. £12, r. £60 p.a. 585
Kensal-green—54 and 56 Greyhound-rd., u.t. 95 yrs., g.r. £10. 10s., r. £52 p.a. 375

By G. STOCKINGS.
Camden-rd.—No. 1A, u.t. 63 yrs., g.r. £20, r. £60 p.a. 550

By THE CHEAP WOOD COMPANY.
Walthamstow—10, Gamuel-rd., f., r. £26 p.a. 245

By BAKER & SONS.
Brussels—The building materials forming the British section of the Exhibition 500

By H. V. CHEW.
Leytonstone—The f. residence "Maunamead," e.r. £43 p.a. 655
Leyton—17, Belmont-villas, u.t. 91 yrs., g.r. £5. 5s., r. £26 p.a. 315

By R. REID.
Soho—171, Wardour-st., f., r. £100 p.a. 2,000
Surbiton—F.g.r. of £20, with reversion in 30 yrs. to an e.r. of £100 p.a. 500

By NEWSON & HARDING.
Holloway—19, Loraine-rd., f., e.r. £48 p.a. 620
Kingsland-rd.—F.g.r. of £25, with reversion in 38 yrs., to a r. of £120 p.a. 830
F.g.r. of £30, with reversion in 16 yrs. to a r. of £85 p.a. 940

Barnsbury—62 and 64, John-st., u.t. 76 yrs., g.r. £2. 10s., e.r. £94 p.a. £900
18, Gibson-sq., u.t. 38 yrs., g.r. £9, r. £46 p.a. ... 375
1, Richmond-cres., u.t. 62 yrs., g.r. £8, r. £52. 10s. p.a. 550
Balls Pond—9 to 13, Hawthorne-st., u.t. 64 yrs., g.r. £21, r. £118 p.a. 930
Hackney—21, 23, and 25, Spurstowe-rd., u.t. 85 yrs., g.r. £18, r. £84 p.a. 660
Islington—16 and 17, Popham-st., u.t. 31 yrs., g.r. £20, r. £83. 4s. 195

By RANDALL, BEARD, & BAKER.
New Southgate—2, 3, 5, and 6, Clydesdale-ter., u.t. 92 yrs., g.r. £21, r. £83 p.a. 420

[*Contractions used in this list.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; yd. for yard, &c.]

MEETINGS.

TUESDAY, JULY 9.

Builders' Accident Insurance.—Ordinary General Meeting to receive the Directors' Report and for electing Directors and Auditors. 4 p.m.

SATURDAY, JULY 13.

Architectural Association.—Fourth vacation visit to Professor Herkomer's House and Schools at Bushey (see advt.).

Glasgow Architectural Association.—Visit to Kelly House, Wemyss Bay.

Miscellanea.

Church of St. Edmund the King and Martyr, Lombard-street.—In our last week's number we announced that it had been decided to demolish yet another of our typical "City churches,"—that in Langbourne Ward, dedicated to the memory of the East Anglian king who suffered martyrdom in the mode of Sebastian, at the hands of the Danes, in the year 870, at Hoxne, county Suffolk. Of the former structure but little more is known than that therein was buried John Shute (1563), author of "The First and Chiefe Groundes of Architecture,"—one of the earliest works of its kind published in this country. Rebuilt by Wren, after the Tuscan style, in 1690, and at a cost of 5,207*l.* 11s., it has since served for the united parishes of St. Edmund the King and St. Nicholas Acons. The church is not square on plan, nor are the opposite sides parallel. The interior dimensions, *teste* the late Mr. George Godwin's work, are 60 ft. (that is, north to south) exclusively of the tower, by 39 ft. wide. The tower, projecting from the southern elevation by less than 2 ft., and having its piers within the church, rises to a height of about 90 ft., the spire forming a later addition. The communion-table stands within a wide recess of the northern wall, between two paintings, by Etty, of Moses and Aaron, which were set up after the repairs of 1833. The fabric was restored by Butterfield, and was re-opened in 1865, and again in 1880. The two stained-glass windows representing SS. Peter and Paul, formerly in the chancel, were given by the parishioners; that between them was "set up in the memorable year of the union, 1707." The two windows, together with the "memorial" window, were removed from the northern to the southern side of the church about nine years ago, when the organ was transferred from a stage in the tower to the western wall. Hatton describes the "painted monument like a hatchment with her arms and supporters" in memory of Queen Mary, consort of William III. The organ (1833) was built by J. C. Bishop. The value of the living is stated in "Mackeson's Guide" to be 1,500*l.* with a house. A petition against this church's demolition lies for signature within the entrance.

Presentation to a Surveyor.—Mr. J. W. Hudson, of the Surveyor's Department of the Vestry of St. John, Hampstead, on retiring from official life on June 24, after thirty-three years' service, was presented by his brother-officers and friends with an elaborately-chased and engraved silver salver, inscribed with feeling expressions of regard and esteem, and it was accompanied by a purse of one hundred guineas. The presentation was made at the Vestry-hall by Mr. C. H. Lowe, C.E., in the presence of a large number of friends, and was suitably acknowledged by the recipient. The whole of the workmen in the employ of the Vestry also spontaneously subscribed for a watch and guard as a mark of respect. Mr. Hudson retires upon a superannuation allowance unanimously voted by the Vestry.

The Artists' Benevolent Fund.—The eightieth anniversary dinner of this corporation is announced for Wednesday, the 17th inst., at Freemasons' Hall, the Bishop of Ripon in the chair.

The Portland Industrial Dwellings.—A notorious Marylebone rookery, in the neighbourhood of Conway and Grafton courts, and adjacent to the now open burial-ground in Paddington-street, has just been replaced by seven blocks of dwellings for occupation by the working-classes. These buildings have been erected by Messrs. Wall Bros., of Kentish-town, who tendered for 13,743*l.*, from the designs and under the direction of Mr. Charles Fowler and Mr. Alfred R. Pite, architects, Mr. G. Wren acting as clerk of the works. The several blocks contain 209 rooms in all, whereof the lowest rent is fixed at 1s. 6d. per week for each room. Messrs. Berry & Sons, engineers, of Regency-square, Westminster, have fitted up a separate steam laundry, with all the necessary appliances for washing, wringing, drying, and ironing. Each block consists of four floors and a basement, and on every flight are supplied water, two water-closets, and gas. The County Council have been petitioned for authority to re-name these tenements by style of "Ossington-buildings," in tribute to the helpful interest which Lady Ossington takes in the domestic improvements of the parish. Various bands, including that of the "D" police division, play in the recreation ground; and the tender of Messrs. W. H. Lascelles & Co., of 121, Bunhill-row, for 55*l.*, has been accepted by the Vestry for the erection of a band-stand, seats, &c.

The English Iron Trade.—The English iron trade appears to be on the verge of an upward move again, the tone of the market being healthy. There is a greater anxiety on the part of buyers to place their orders at present rates, and this causes prices to be strong, and advances are heard of from various quarters. The Scotch warrant market has been firmer, and quotations are higher than a week ago. Slight advances have been made in Cleveland iron, and Bessemer is very steady at old prices. In Lancashire and Staffordshire pig-iron shows a rising tendency. There is a further upward movement in finished iron. Sheets have gone up 10s. a ton, and Lancashire and Staffordshire bars are 5s. dearer. Steel prices are very much stiffer. Rails and wire rods in the north-west are 5s. better in price, while blooms are quoted 2s. 6d. more. Ship-builders are not booking orders quite as readily as lately, but this is due, more particularly on the Clyde, to the continued trade disputes and the uncertainty to which they give rise. Engineers, on the other hand, continue very busy, and in many cases are unable to book more work.—*Iron.*

Bear Yard, near Clare Market.—In the course of last month were demolished some old workshops, store-houses, and the like, constructed mainly of wood, which stood within the area of Bear-yard, at the rear of the Board School in Vere-street. These messuages, we believe, had formerly served for slaughter-houses. After a fire which broke out here on September 17, 1809, some red-brick walls came to light which were considered to be the remains of the theatre—not to be confounded with the neighbouring Lincoln's-inn-Fields Theatre—in Gibbons's tennis-court, Vere-street. That theatre was opened in the tennis-court by Killigrew's company in November, 1660, and there they abode until their removal in April, 1663, to the King's house, the first on its site, further westward, which is now represented by Drury-lane theatre.

New Harbour Works at Copenhagen.—We referred recently to the construction of a new free harbour, with docks, warehouses, &c., at Copenhagen, and it is now stated that several offers have been made by German *entrepreneurs* to carry out the same. However, this has caused certain banks in the Danish capital to provide the funds required,—about 120,000*l.*,—and therefore the work will, no doubt, shortly be taken in hand.

The Cripples' Home, Marylebone-road.—With reference to this building, a notice of which appeared in our number of the 22nd ult., Mr. Archibald D. Dawnay writes to say that the whole of the floors, roofs, and vaults were fireproofed by him upon his system of solid concrete, and that he also supplied and erected all the constructional ironwork, cast-iron tank, and roof. The Seyssel Asphalte Co. asphalted the concrete roof-flats.

Cremation in Finland.—A cremation society,—the first of its kind,—has been formed in Finland, and as soon as it has been recognised by the authorities, a crematorium will be erected.

Society for the Protection of Ancient Buildings.—On Wednesday afternoon the twelfth annual meeting of the Society for the Protection of Ancient Buildings was held in the Old Hall, Barnard's Inn, Holborn. The chair was taken by the Hon. R. C. Grosvenor. Mr. William Morris read a paper entitled "Old and New," in which he said that no private reasons, such as gain or profit, were strong enough, and no public reasons that he had met with were sufficient, to warrant the destruction of historical and romantic buildings. If we had a population that could not appreciate beauty we should also have one that could not produce beauty. As regarded the romance of the society, he considered that romance meant a capacity for the true conception of history,—for seeing the past times live in the present through the relics that were left to us. We should look upon ourselves as only trustees for those who were to come after us when we were dealing with public or ancient buildings, and if we were not rich enough to preserve them in all their beauty and romance, then we were poor indeed. As specimens of mere craftsmanship, as showing us what sort of work our workers could turn out before the intervention of the middle-man or huckster, everything that was old should be carefully preserved and handed down to our posterity. Craftsmanship now appeared to be confined to our surgeons. No one could get a decent house built, but everybody could have his leg cut off in a most beautiful manner. Mr. Morris wound up with an indignant protest against those whom he described as "ignorant restorers of the works of our forefathers." A vote of thanks was passed to Mr. Morris for his paper.

Architecture at University College.—The following prizes have been awarded to the members of Professor T. Roger Smith's Classes:—*Fine Art:* Donaldson Silver Medal, H. P. Adams. 2nd Prize, E. C. Finch. Certificate, 3*, Louis Jacob. *Second Class*, J. P. Cooper and E. B. Hoole. *Third Class*, K. Sakurai and A. G. Salmon. *Construction:* Donaldson Silver Medal: P. S. Worthington. 2nd Prize, S. A. Lang. Certificates, 3*, A. G. Salmon. 4*, A. G. Robertson. 5*, W. W. Hind Smith. *Second Class*, H. P. Adams and V. H. King. *Third Class*, C. W. Dawson, E. Cubitt Nicholls, and Tokitaro Okada. *Modern Practice:* Prize: Walter Taylor. Certificate, 2*, Harry Sirr. *Second Class*, H. P. Adams, S. C. Arding, Sidney Mart, Jas. Simpson, and P. S. Worthington. *Third Class*, E. C. Finch, F. W. Fryer, and H. B. Young, of Slough. Those names marked with an asterisk obtained the number of marks qualifying for a prize.

Exhibition of Ecclesiastical Art.—The Marquis of Bute has granted the use of the drill-hall at Cardiff for the eleventh annual Ecclesiastical Art Exhibition, to be held during the Church Congress. We are informed that "the leading church and school furnishers throughout the country have already signified their intention of exhibiting, and it is expected that the trade department of the Exhibition will be larger than ever, while great pains are being taken to secure a large and interesting loan collection." The exhibits will embrace every object used in the building and adornment of churches,—goldsmiths' and silversmiths' work, ancient and modern and ecclesiastical metal-work in general, tapestry, embroidery, wood and ivory carving, church furniture, paintings, drawings, architectural designs, &c. The offices of the Exhibition have been removed to Maltravers House, 17 and 18, Arundel-street, Strand, W.C.

Exeter Diocesan Architectural Society.—A general meeting of this Society was held on the 26th ult., in the Hall of the Vicars' College. In the report read by the senior secretary, Rev. J. L. Fulford, notices were given of the works of restoration recently carried out in two or three churches in North Devon, Braunton, and Heanton Punchardon, and the work was generally commended. Mention was made of the small parish church of St. Pancras, Exeter, recently reopened, after having been shut up for years, and of its satisfactory restoration. A paper was read by Mr. Ashworth, architect, on "Basilican and Greek Churches," carefully illustrated.

Shop Shutters.—The Bostwick Gate and Shutter Co. send us a diagram showing the application to shop fronts of their patent folding iron shutters and gates, the application of which to dwelling-houses we have before noticed.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	10	0	7	10	0
Teak, E.I. ....load	11	0	0	15	0	0
Sequoia, U.S. ....foot cube	0	2	3	0	3	0
Ash, Canada ....load	3	10	0	5	0	0
Birch ,, ...	3	10	0	6	0	0
Elm ,, ...	4	0	0	5	0	0
Fir, Dantsic, &c.	2	0	0	3	10	0
Oak ,, ...	2	10	0	4	10	0
Canada ,, ...	5	10	0	7	10	0
Pine, Canada red	3	5	0	4	0	0
,, yellow	3	10	0	5	10	0
Lath, Dantsic ....fathom	4	10	0	5	10	0
St. Petersburg	5	0	0	6	10	0
Wainscot, Riga, &c. ....log	2	15	0	4	5	0
Deals, Finland, 2nd and 1st ...std.	9	10	0	11	0	0
,, ,, 4th and 3rd	8	0	0	9	0	0
Riga	7	10	0	9	0	0
St. Petersburg, 1st yellow	11	0	0	15	0	0
,, 2nd ,, ...	10	0	0	11	0	0
,, white	7	10	0	10	10	0
Swedish	9	0	0	16	0	0
White Sea	9	10	0	17	0	0
Canada, Pine, 1st	16	0	0	26	10	0
,, ,, 2nd	11	0	0	17	10	0
,, ,, 3rd, &c.	8	0	0	10	10	0
,, Spruce, 1st	9	10	0	11	0	0
,, ,, 3rd and 2nd	7	10	0	9	0	0
New Brunswick, &c.	6	15	0	8	15	0
Battens, all kinds	6	10	0	20	0	0
Flooring Boards, sq., 1 in., prepared, First	0	11	0	0	14	6
Second	0	8	0	0	10	9
Other qualities	0	5	6	0	7	9
Cedar, Cuba ....foot	0	0	4½	0	0	4½
Honduras, &c.	0	0	4½	0	0	4½
Mahogany, Cuba	0	0	4½	0	0	6½
St. Domingo, cargo average	0	0	4½	0	0	6½
Mexican ,, ...	0	0	4½	0	0	5½
Tobasco ,, ...	0	0	5	0	0	6
Honduras ,, ...	0	0	5	0	0	6

TIMBER (*continued*).	£.	s.	d.	£.	s.	d.
Box, Turkey ....ton	4	0	0	12	0	0
Rose, Rio	15	0	0	20	0	0
Bahia	14	0	0	18	0	0
Satin, St. Domingo ....foot	0	0	6	0	1	0
Porto Rico	0	0	9	0	1	3
Walnut, Italian	0	0	4½	0	0	6½
METALS.						
IRON—Bar, Welsh, in London ...ton	5	5	0	5	10	0
,, ,, at works in Wales ...	4	15	0	5	0	0
,, ,, Staffordshire, in London ...	5	10	0	6	10	0
COPPER—						
British, cake and ingot.... ton	46	0	0	46	10	0
Best selected	47	0	0	47	10	0
Sheets, strong	53	10	0	0	0	0
Chili, bars	41	10	0	0	0	0
YELLOW METAL ....lb.	0	0	5	0	0	5½
LEAD—Sheet, English ....ton	13	10	0	14	0	0
SPELTER—						
Silesian, special .... ton	18	15	0	19	0	0
Ordinary brands	18	13	6	18	15	0
TIN—						
Straits .... ton	89	0	0	0	0	0
Australian	88	0	0	0	0	0
English Ingots	93	0	0	0	0	0
ZINC—English sheet .... ton	21	0	0	22	0	0
OILS.						
Linseed .... ton	21	0	0	21	7	6
Cocoanut, Cochin	26	10	0	27	10	0
Ceylon	24	10	0	0	0	0
Palm, Lagos	24	0	0	24	10	0
Rapeseed, English pale	28	0	0	0	0	0
,, brown	27	0	0	28	10	0
Cottonseed, refined	25	10	0	27	0	0
Tallow and Oleine	21	0	0	40	0	0
Lubricating, U.S.	5	0	0	6	0	0
,, refined	7	0	0	12	0	0
TAR—Stockholm ....barrel	1	3	0	1	3	6
Archangel	0	15	9	0	16	0

COMPETITION, CONTRACTS, & PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

COMPETITION.

Nature of Work.	By whom Required.	Premium.	Designs to be delivered.	Page.
Shops, Waiting-rooms, &c., Victoria Pier, Douglas	Isle of Man Harbour Commissioners	....	Not stated.	i.

CONTRACTS.

Nature of Work, or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Wood Blocks, Thames Ballast and Sand, &c.	Chelsea Vestry	G. R. Strachan	July 9th	ii.
Broken Granite and Kentish Flints	Barking Town Loc. Bd.	C. J. Dawson	July 11th	ii.
Painting Works	St. Saviour's Union ...	Jarvis & Son	do.	ii.
Swimming Bath	Forest Gate Sch. Dist.	*Official*	do.	x.
Kerbing, Channelling, Roadmaking, &c.	Plumstead Bd. of Wks.	do.	July 12th	x.
Underground Urinal, &c.	Paddington Vestry	do.	July 15th	ii.
Broken Guernsey Granite	Bermondsey Vestry	do.	do.	x.
Casual and Receiving Wards	Strand Union	W. S. Cross	July 16th	x.
Wood-Paving	Wandsworth Bd. of Wks	*Official*	do.	x.
Well-Sinking	Tottenham Local Board	J. E. Worth	do.	x.
Cast-iron Pipes	Kettering Waterwks Co.	T. Hennell	July 18th	x.
Brick Sewer, &c.	Lambeth Vestry	Hugh McIntosh	do.	x.
Postal Sorting Office, South Tottenham	Com. of H.M. Works	*Official*	July 19th	x.
Kerbing and Paving	Chelmsford Town Coun.	C. Pertwee	July 22nd	x.
Additions, &c., to Clerkenwell Police Court	Com. of H.M. Works	*Official*	do.	ii.
High Level Sewer, &c.	Belfast Corporation ...	J. C. Bretland	July 23rd	ii.
Wood-Paving	West Ham Council	Lewis Angell	do.	x.
Formation of Wharf	Fulham Vestry	J. P. Norrington	July 24th	x.
New Drainage System, Works to Soil Pipes, &c.	Poplar Union	Messrs. Clarkson	do.	x.
Pipe Sewers, Manholes, Gullies, &c.	Shirley and Fremantle Local Board	H. J. Weston	July 29th	x.
Reproduction of Groups of Figures	St. Pancras Vestry	W. B. Scott	Not stated.	x.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Borough Surveyor	Stratford-upon-Avon Town Council	200*l.*	July 8th	xvi.
Clerk of the Works	Twickenham Local Bd.	Not stated	July 9th	xvi.
Inspector of Sewers and Drains	Hackney Bd. of Works	3*l.* 3s. per week	July 10th	xvi.
Second Clerk in Surveyor's Department	St. John (Hampstead) Vestry	100*l.*	do.	xvi.
Inspector of Nuisances, &c.	St. Saviour's District Board of Works	110*l.*, &c.	July 15th	xvi.
Surveyor	Acton Local Board	350*l.*	July 16th	xvi.
County Surveyorships, Ireland	Civil Service Com.	Not stated	July 26th	xvi.

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *Noon on Thursdays.*]

BISHOPSTEIGNTON (Devon).—For alteration to house, &c. Mr. S. Segar, architect, Newton Abbot:—

F. W. Pook, Bishopsteignton	£367 8 9
Fey & Son, Bishopsteignton*	374 10 0

* Accepted.

CANTERBURY.—For proposed alterations and additions to the Canterbury Club, St. George's-street, Canterbury. Messrs. Cowell & Bromley, architects, Folkestone:—

Knock, Ashford	£3,200 0 0
Gaskin, Canterbury	2,935 0 0
Judges, Boughton	2,910 0 0
Gentry, Canterbury	2,876 0 0
Denne, Walmer	2,838 0 0
Martin, Ramsgate	2,808 0 0
Denne & Son, Deal	2,780 0 0
Cozens, Canterbury	2,693 0 0
Wiltshire, Canterbury	2,634 0 0

COBHAM.—For sanitary works at "Fairlawn, Cobham, for Mr. Maling Grant. Mr. J. Nixon Horsfield, surveyor:—

J. Johnson, Brighton-road, Surbiton	£134 0 0

COLCHESTER.—For alterations and additions to "Delaval" Lodge, Lexden, for Mr. G. D. Shafto. Mr. J. W. Start, architect, High-street, Colchester:—

T. J. Ward	£500 0 0
E. R. Orfeur	485 0 0
R. Beaumont	457 0 0
F. Dupont (accepted)	453 0 0

[All of Colchester.]

DUBLIN.—For additions to the library and museum buildings, Trinity College. Mr. Thomas Drew, R.H.A., architect, 22, Clare-street, Dublin:—

	Library.	Museum.
Collen Bros.	£1,675 0 0	£225 0 0
J. & W. Beckett	1,575 0 0	235 0 0
H. Sharpe	1,468 0 0	301 0 0
S. Bolton & Sons	1,490 0 0*	276 0 0*

* Accepted.

DYMCHURCH (Kent).—For the construction of three timber groynes on the sea front, at Dymchurch, Kent, for the Lords, Bailiff, and Jurats of the Level of Romney Marsh. Mr. H. D. Good, Engineer:—

R. Webster, Folkestone	£1,020	0	0
W. Swales, Shoreham	878	0	0
W. Halsell, Lydd	587	14	0
H. S. Winser, Ore, Hastings	585	0	0
Wraight Bros., Dymchurch	543	0	0
Wm. Martin, Lydd (accepted)	523	0	0

EDMONTON.—For the construction of new roads and sewers, at Silver-street, Edmonton, for Messrs. E. E. Croucher & Co., surveyors, 76, Chancery-lane, W.C.:—

Nowell & Robson	£1,700	0	0
Jesse Jackson	1,690	0	0
C. Killingback	1,645	0	0
Woods & Co.	1,410	0	0
A. T. Catley	1,309	0	0
J. Pizzey	1,257	0	0
G. Bell	1,223	0	0
C. Taylor	1,119	0	0
T. Adams	1,092	11	10
W. Nicholls	1,029	0	0

EDWARDSTONE (Suffolk).—For new farmstead, Edwardstone, Suffolk. Mr. Arthur J. Lacey, architect:—

Dobson	£1,838	0	0
Grimwood & Sons*	1,698	0	0

* Accepted, subject to modifications.

ELSTREE.—For the erection of cottages for Mr. Henry Hucks Gibbs. Messrs. Woodd & Ainslie, architects:—

John Shillitoe & Son, Bury St. Edmunds (accepted)	£1,106	0	0

EPPING.—For alterations to "Forest Side," for Mr. C. J. Hainsworth. Mr. Richard Peters, architect, 72, Wool-exchange, Coleman-street, E.C.:—

Lascelles	£555	0	0
T. Watson	437	0	0
Marston	433	0	0
Palmer Bros.	421	0	0
Hood (accepted)	393	0	0

FAREHAM.—For general alterations, re-seating, painting and decorating, &c., to Holy Trinity Church. Mr. Wm. Yeardye, architect, High-street, Gosport:—

E. Tuite (accepted)	£274	0	0

[Four tenders received].

FELIXSTOWE.—For new stabling, Felixstowe, for the Rev. Washington. Mr. R. F. Bisshopp, architect:—

Bennett	£1,070	0	0
Saunders	900	0	0
Ward	899	0	0
Everett	850	0	0
Brown	850	0	0
Grimwood & Sons	833	0	0

IDEFORD (Devon).—For building two cottages. Mr. S. Segar, architect, Newton Abbot:—

Fey & Son, Bishopsteignton	£485	5	0
Christopher, Ideford	329	10	0
F. W. Pook, Bishopsteignton*	301	0	0

* Accepted.

LEESLAND (near Gosport).—For the erection of a cottage, for Mr. E. Pring. Mr. Wm. Yeardye, architect, High-street, Gosport:—

E. Boyes (accepted)	£233	10	0

[Five tenders received].

LONDON.—For pewtering, at the "Plough," Rupert-street, W. Messrs. Bird & Walters, architects:—

South	£205	0	0
Heath	189	0	0
Farmiloe	186	0	0
Sanders	185	18	7
Buckley & Beach	178	15	0
Helling (accepted)	162	0	0

LONDON.—For cabinet and counter, &c., at the "King's Arms," Cheyne-walk, Chelsea, for Mr. B. Fickling. Mr. Ensor, architect:—

Cabinet-work.

Sanders	£134	0	0
Lascelles	118	0	0
Turtle & Appleton	110	0	0
Walters & Co.	96	0	0
Helling (accepted)	93	0	0

Pewtering.

Sanders	60	10	0
Watts & Co.	57	9	0
Helling (accepted)	51	0	0

LONDON.—Tenders for two steam boilers and a superheater in the women's yard (Specification A), or two steam boilers and a super-heater in the present boiler-room (Specification B), at the Westminster Union Workhouse, Poland-street, W., for the Guardians of the Westminster Union. Mr. Jno. Waldram, engineer, 16, Craven-street, Charing-cross, W.C.:—

	Specification A.	Specification B.
Jeakes & Co., London	£1,566	£1,558
Cannon, London	1,530	1,290
Ferguson & Son, Glasgow	1,300	1,285
Tinker Bros., Hyde, near Manchester	1,200	1,150
Benham & Sons, London	1,095	1,050
Summerscales & Sons, Keighley	1,086	1,064
R. Crane, London	1,080	1,025
Thomas & Taylor, Stockport	1,054	1,307
Pigott & Co., Birmingham	1,039	1,014
E. Danks, Oldbury	970	935
Fraser & Fraser, London*	964	923

[Engineer's estimates, £978 and £897 respectively.]

* Messrs. Fraser & Fraser's tender for Specification A accepted.

LONDON.—For cleaning and whitewashing the Chelsea Infirmary:—

H. Jones, Uxbridge-road	£335	0	0
T. Burbidge, Sydney-street, Chelsea	305	10	0
J. Leggett, 1, Britten-street	305	0	0
W. Eades, 20, Coulson-street	300	0	0
J. Housego, 103, Sydney-street	297	0	0
J. Griffiths, Park-walk	296	0	0
T. Steel, 112, King's-road	289	0	0
R. Mason, 31, Milman-street	286	0	0
J. Jones, 40, Sydney-street, Chelsea	286	0	0
Stewart & Co., Walworth	285	10	6
J. Simmonds, Thornton Heath	270	0	0
G. Wade, 24, Flood-street	267	0	0
G. Searle, 19, College-place	256	10	0
G. Foxley, Regent-street	230	0	0
McCarthy, 12, Oakley-street	220	0	0
W. Andrews, Stroud-green	199	10	0
Leathermore, Tulse-hill	189	0	0

LONDON.—For the erection and completion of the Weigh House Chapel, Duke-street, Mayfair. Mr. A. Waterhouse, R.A., architect:—

John Shillitoe & Son, Bury St. Edmunds (accepted)	£14,815	0	

LONDON.—For alterations to the "Medina" Tavern, Seven Sisters-road, N., for Mr. W. F. Minns. Mr. Henry S. Tyack, architect, 6, Duke-street, Adelphi, W.C.:—

Macfarlane Bros.	£1,275	0	0
S. Goodall	1,122	0	0
Wilkinson Bros.	1,110	0	0
Hayworth & Sons	1,108	0	0
Bright & Co.	1,085	0	0
Royal & Co.	1,026	0	0
Burman & Sons (accepted)	993	0	0

LONDON.—For alterations to the "Victory" Tavern, Trafalgar-road, Old Kent-road, S.E., for Mr. W. J. Goddard. Mr. Henry S. Tyack, architect, 6, Duke-street, Adelphi, W.C.:—

S. Goodall	£902	0	0
Hayworth & Sons	893	0	0
Burman & Sons	890	0	0
Burton & Sons	879	0	0
A. Hood	792	0	0
Bright & Co. (accepted)	750	0	0

LONDON.—For painting and decorating the "Mason's Arms" Tavern and the "Rock" Tavern, York-road, Battersea, S.W., for Mr. E. Purchase. Mr. H. I. Newton, architect, 49, Victoria-street, Westminster:—

Burman, Sharstad-street	£365	0	0
Walker, Gough-street	360	0	0
Godden, 43, Upper George-street	350	0	0
Jones, 40, Sydney-street, Chelsea	309	0	0
Lamble, 12, Chichester-street, W.	245	0	0
Smith & Son, Pond-street, Belgravia*	232	0	0

* Accepted.

LONDON.—For alterations and additions at the "Cricketers" public-house, Battersea Park-road, for Mr. E. Perry. Mr. J. T. Alexander, architect, 40, Great James-street, Bedford-row, W.C.:—

Hart Bros.	£3,143	0	0
Burton & Co.	2,813	0	0
Patman & Fotheringham (accepted)	2,779	0	0

LONDON.—For extra works in the enlargement of the Halford-road School, Chelsea, for the School Board for London. Mr. T. J. Bailey, arekitect:—

Hart Bros.*	£866	3	5

* Recommended by the Works Committee for acceptance.

LONDON.—For tar-paving at the Westminster Union Schools, Wandsworth Common, for the Guardians of the Westminster Union. Mr. Jno. Waldram, surveyor, 16, Craven-street, Charing-cross, W.C.:—

Neal	£109	10	0
Johnson	103	0	0
Mowlem	98	0	0
Hobman (accepted)	80	0	0

[Surveyor's estimate, £85.]

LONDON.—For bar-fittings and pewtering, at the "Victoria," Kensal-green, for the New Western Brewery Company, Limited. Mr. W. H. Budd, architect:—

J. Warne	£157	0	0
Moody	149	15	0
Helling (accepted)	128	7	6

LUTON.—For erecting St. Paul's church, Luton, Bedfordshire. Mr. T. N. Laslett, architect. Quantities by Mr. C. Batston:—

Clarke & Bracey, London	£7,200	0	0
Parkins, Luton	6,890	0	0
Miskin, St. Albans	6,560	0	0
Bentley, Ware	6,320	0	0
Smart, Luton	6,280	0	0
Dunham, Luton	6,188	0	0
Grimwood & Sons, Sudbury	5,998	0	0
Neville, Luton	5,970	0	0

MISTLEY (Essex).—For laying new floor, &c., to Maltings, Mistley, for Messrs. W. Brooks & Sons. Mr. J. W. Start, architect, High-street, Colchester:—

H. B. Smith, Ipswich	£800	0	0
Saunders & Son, Dedham	465	0	0
E. R. Orfeur, Colchester	390	0	0
F. Dupont, Colchester (accepted)	335	0	0

NEWBURY.—For partly reconstructing the roof of the Corn Exchange, Newbury. Mr. James H. Money, architect, Newbury:—

Slaters', Plasterers', Carpenters', and Joiners' work to roof.

S. Elliott	£268	5	3
E. James & Son	257	12	6

Plumbers' and Painters' work.

G. Biddis	£160	0	0
Boyer & Co.	59	10	0
E. James & Son	43	18	0

For Smiths' and Coppersmiths' Work.

E. Harris	£68	12	0
J. Staples	63	14	9
Edwards & Godding	38	10	0
E. James & Son	38	0	0

Glazing, &c.

G. H. Rendle & Co., Westminster	£254	14	2

NEWBURY.—For the erection of three cottages at Kintbury, for Mr. Beard. Mr. J. H. Money, architect:—

J. Bance, Kintbury	£383	16	8
H. Hoskins, Hungerford	359	0	0
A. White, Newbury	355	0	0
W. Stone, Woodhay	375	0	0
G. Elms, Benham	348	0	0
E. James & Son, Newbury (accepted)	339	10	0
H. Botsford, Newbury	339	0	0

NEWPORT (Mon.).—For the erection of new bar and other works at the "Crown" Hotel, Abercarn. Mr. E. A. Lansdowne, architect:—

J. Linton, Newport (accepted)	£475	0	0

NEWPORT (Mon.).—For rebuilding the "Welcome Home" public-house, Commercial-road, Newport. Mr. E. A. Lansdowne, architect, Newport. Quantities by the architect:—

H. Parfitt, Newport	£1,040	0	0
J. Williams, Newport	999	0	0
G. Wilkins, Newport	962	0	0
Jones & Son, Newport	950	0	0
J. Linton, Newport	950	0	0
J. Webb, Newport	940	0	0
J. W. Linton, Newport	925	0	0
C. Lock, Newport	895	0	0
W. Blackburne (accepted)	894	0	0

NEWTON ABBOT (Devon).—For dwelling-house, Ilsington, for Mr. William Thorn. Mr. S. Segar, architect, Newton Abbot:—

Lewis Bearne, Newton Abbot	£676	0	0

[No competition.]

NORBITON.—For new music-room at Coombe Croft, for Mr. Robert Norton. Messrs. Mitchell & Butler, architects, 16, Finsbury-circus, E.C.:—

Hall, Beddall, & Co.	£2,634	0	0
Holland & Hannen	2,438	0	0
Colls & Sons (accepted)	2,068	0	0

NOTTINGHAM.—For pulling down and rebuilding the "Bird-in-Hand" public-house, and two houses and shops adjoining. Messrs. Heazell & Son, architects, Nottingham. Quantities supplied:—

J. J. Adams	£1,350	0	0
F. Messom	1,331	0	0
A. B. Clarke	1,300	0	0
E. Hind	1,297	0	0
J. Cooper	1,308	0	0
J. F. Price	1,305	0	0
Jos. Shaw	1,240	0	0
J. H. Clark	1,228	0	0
Wheatley & Maule (accepted)	1,225	0	0

[All of Nottingham.]

PONTEFRACT.—For sinking a well at Roall, about ten miles from Pontefract, and executing all the necessary works for conveying the water to Park Hill Reservoir, at Pontefract, for the Corporation of Pontefract. Mr. George Hodson, M.Inst.C.E., F.G.S., Engineer, Loughborough:—

J. Villiers, Beverley	£25,975	7	2
Foster & Geen, London	24,750	0	0
Thos. Lowe & Sons, Burton-on-Trent	24,200	0	0
Parker & Sharp, York	23,858	7	2
Fotherley & Sons, Burnley	23,487	18	11
B. Graham & Sons, Huddersfield	23,133	0	0
Holme & King, Liverpool	23,068	8	11
Joseph Tomlinson, Derby	22,963	0	0
H. Vickers, Wilford-road, Nottingham (accepted)	22,800	0	0

ROMSEY (Hants).—For the erection of chimney-shaft and boiler-houses, for Mr. W. Williams. Mr. Richard Peters, architect, 72, Wool-exchange, Coleman-street, E.C.:—

Richardson Bros.	£360	0	0
Wheeler	300	0	0
Warden (accepted)	266	0	0

SOUTHAMPTON.—For relighting Above-Bar Congregational Church with gas. Mr. W. H. Mitchell, architect, Southampton:—

W. Hornsey	£290	0	0
Lankester & Sons	280	0	0
F. Shalders	265	0	0
F. H. Kingerlee (accepted)	248	0	0

SOUTHAMPTON.—For relighting Portland Chapel with gas. Mr. W. H. Mitchell, architect:—

F. Shalders	£115	10	0
Lankester & Sons	109	6	6
W. Hornsey (accepted)	103	0	0

SOUTHAMPTON.—For erecting new drill-hall and head-quarters for the 3rd Volunteer Brigade Southern Division Royal Artillery. Mr. W. H. Mitchell, architect, Southampton:—

For the whole of the Work, exclusive of Iron Roof to Drill-hall.

H. Stevens & Co., Southampton	£2,784	0	0
Morgan, Isted, & Morgan, Southampton	2,720	0	0
Crook & Sons, Southampton	2,593	0	0
John Witt, Bittern	2,590	0	0
W. H. Chapman, Woolston	2,587	0	0
J. P. Beer, Southampton	2,500	0	0
Jonas Nichols,* Southampton	2,490	0	0

For Iron and Glass Roof of Drill-hall.

Dixon, Isaac, & Co.,* Liverpool	£656	10	0

* Accepted.

SOUTHAMPTON.—For alterations and repairs at the "Golden Lion," Fanshawe-street, for Messrs. Hine Bros. Mr. W. H. Mitchell, architect:—

Rowland & Sons, Southampton	£310	0	0
W. Harvey, Southampton	298	0	0
H. Stevens & Co., Southampton	290	0	0
Morgan, Isted, & Morgan, Southamptos	286	0	0
Crook & Sons, Southampton (accepted)	272	10	0

STUBBINGTON.—For the erection of farmery, earth-closets, &c., at Stubbington House, for Mr. M. H. Foster. Mr. Wm. Yeardye, architect. Quantities supplied:—

W. Hill & Co.	£570	0	0
J. Plummer	525	0	0
J. Crockerell	510	0	0
C. Wareham (accepted)	458	10	0

SUDBURY.—For new Baptist Chapel at Sudbury. Mr. Wm. Eade, architect:—

Wanford	£1,779	0	0
Hawkings	1,497	0	0
Grimwood & Sons	1,396	0	0

SURBITON.—For erecting detached residence, with stabling, for Mr. W. H. Hutchinson. Mr. J. Nixon Horsfield, architect, 20, Market-place, Kingston-upon-Thames:—

Adkins Bros.	£4,436	0	0
J. Chapman	4,259	0	0
R. & G. Rattley	4,171	0	0
C. & T. Adkins	3,800	0	0
Turtle & Appleton, Spencer House, Clapham Junction (accepted)	3,686	0	0

TELSCOMBE (near Brighton).—For erecting training stables, &c., at Telscombe, near Brighton, for Mr. John Gubbins. Mr. Arthur Loader, architect, 54, Old Steine, Brighton:—

Jeal	£2,995	10	0
J. M. Newnham	2,117	0	0
C. & F. Cheesman	1,660	0	0
J. J. G. Saunders	1,369	0	0

[All of Brighton].

TWICKENHAM.—For forming new road at Twickenham, Middlesex, sewered and kerbed. Mr. Herbert E. Saunders, architect and surveyor, 18, Walbrook, E.C.:—

Woodham & Fry, Greenwich	£649	0	0
F. W. Milman, New Cross (accepted)	593	0	0

TYLER'S GREEN (Bucks).—For new bell-tower, St. Margaret's Church, Tyler's Green. Mr. Arthur Vernon, architect, 26, Great George-street, Westminster, S.W., and High Wycombe, Bucks:—

Silver & Sons	£337	0	0
Gibson	312	0	0
Wheeler (accepted)	275	6	0

URMSTON.—For residence and laboratories for Mr. J. H. Parkinson. Mr. J. H. Burton, architect, Warrington-street, Ashton-under-Lyne:—

Chas. Genney, Manchester	£2,239	8	7
Wm. Holt, Manchester	2,203	0	0
Thos. Rome, Manchester	2,155	0	0
S. Warburton, Manchester	2,090	0	0
Jos. Davison, Manchester	2,069	0	0
Underwood & Bro., Dukinfield	2,020	0	0
Statham & Sons, Manchester	2,017	0	0
R. Whitell, Manchester*	1,928	0	0

* Accepted, subject to certain alterations.

WINCHESTER.—For erection of new church at Highcliffe. Mr. J. L. Pearson, R.A., architect:—

John Shillitoe & Son, Bury St. Edmunds (accepted)	£4,027	0	0

WORKINGTON.—Accepted tenders for Wesleyan Chapel. Mr. Charles Bell, architect, 3, Salters' Hall-court, Cannon-street, London, E.C.:—

Grey, Mason, & Co. (mason, &c., carpenter and joiner), Workington	£3,148	0	0
Lawson (plasterer), Workington	144	0	0
Fisher (smith), Workington	248	0	0
Walker (slater), Cockermouth	134	0	0
Ballantyne, Carlisle	189	0	0
Total	£3,863	0	0

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TO CORRESPONDENTS.

E. A. (thanks).—J. W. & R.—K. & F.—"Maori" (rather too vague).—T. L. W.—G. J.—E. F. D. (we have nothing to do with "insular prejudice," but we know what decorative design means, which some people do not).—W. T. B. (we cannot answer foolish and useless questions).—F. B. (too late).

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

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Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY, and for the front Page by the same hour on WEDNESDAY.

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